

ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT

**RULE 1620 -- CREDITS FOR CLEAN OFF-ROAD MOBILE EQUIPMENT**

*(Adopted: 09/08/95)*

(a) Purpose

The purpose of this rule is to provide opportunities to generate NO<sub>x</sub>, VOC, CO, PM, and SO<sub>x</sub> mobile source emission reduction credits (MSERCs) that can be used as an alternative means of compliance with District regulations. These credits would be generated based on voluntary emission reductions created by the operation of low- or zero-emission off-road equipment within the jurisdiction of the District that result in emission reductions beyond those required by local, state, and federal regulations.

(b) Applicability

This voluntary rule becomes effective January 1, 1996 and applies to any off-road mobile equipment or vehicle for which emission standards have been adopted by the ARB or U.S. EPA and for which optional emission standards have been specified in the ARB's Mobile Source Credit Guidelines. The equipment and vehicles subject to this rule are used primarily off the highways to propel, move, or draw persons or property in construction, commercial, industrial, mining, agricultural, or forestry applications within the boundaries of the District and include equipment such as dozers, loaders, tractors, scrapers, graders, off-highway trucks, forklifts, and utility service vehicles. This rule does not apply to utility and lawn and garden equipment, off-road motorcycles, all-terrain vehicles, go-karts, golf carts, marine vessels, aircraft and locomotives. References to the ARB's Mobile Source Credit Guidelines correspond to the version of the applicable guidelines which are in effect at the time of initial application for MSERCs.

(c) Definitions

For purposes of this rule, the following definitions shall apply:

- (1) **BASELINE EMISSION STANDARDS** means the ceiling emission standards for off-road mobile equipment engines pursuant to the ARB's Mobile Source Credit Guidelines, or the actual emission level of the existing off-road mobile equipment as approved by the Executive Officer or designee in consultation with the ARB. For utility service vehicles, baseline emission standard means the ARB's mandatory emission standards for new vehicle engines which are in effect at the time of initial application. For these engines, the baseline emission standards for VOC and NO<sub>x</sub> shall be based on the combined VOC+NO<sub>x</sub> emission standard prorated by certification emission values of each pollutant provided by ARB.

- (2) **CERTIFIED ENGINE** means an ARB-certified engine or an off-road engine which has been upgraded to the configuration of an ARB-certified on-road engine in accordance with the ARB's Mobile Source Credit Guidelines.
- (3) **CERTIFIED CONVERSION KIT** means any alternative fuel or add-on hardware conversion (retrofit) kit which has been certified by ARB to meet the optional emission standards in accordance with the ARB's Mobile Source Credit Guidelines.
- (4) **EQUIPMENT** means any self-propelled off-road mobile equipment or vehicle which is targeted for repowering, retrofitting, or permanent replacement.
- (5) **EQUIPMENT OPERATOR** means any entity who leases for at least one year or owns off-road mobile equipment, and controls the operation of off-road mobile equipment within the boundaries of the South Coast Air Quality Management District.
- (6) **LOAD FACTOR** means the ratio of the engine power output during typical operating conditions to the engine rated horsepower.
- (7) **LOW-EMISSION EQUIPMENT** means equipment utilizing ARB-certified engines or conversion kits, or which has been retrofitted to meet one of the optional emission standards.
- (8) **MAJOR ENGINE OVERHAUL** means a complete rebuilding of a low-emission equipment engine such that the engine is returned to a condition that is equivalent in operation, durability, and emissions performance to the originally certified engine or conversion kit, by cleaning, adjustment, repair, and major component replacement of the engine which are considered to be beyond routine maintenance procedures.
- (9) **MOBILE SOURCE EMISSION REDUCTION CREDIT (MSERC)** means real, quantified emission reductions in accordance with the ARB's Mobile Source Credit Guidelines, approved by the Executive Officer or designee, that can be used to comply with District Regulations pursuant to subdivision (g), and are surplus to emission reductions required by U.S. EPA, ARB or District regulations.
- (10) **NITROGEN OXIDES (NO<sub>x</sub>)** means the sum of nitric oxides and nitrogen dioxides emitted, calculated as nitrogen dioxide.
- (11) **NON-POLLUTING ALTERNATIVES** means methods or processes which are used to replace existing off-road equipment and do not directly generate any air pollution.
- (12) **OPTIONAL EMISSION STANDARDS** means the applicable equipment engine emission standards, as specified by the ARB's Mobile Source Credit Guidelines, which are more stringent than the baseline emission standard. Zero-emission equipment and non-polluting alternatives shall be assigned an optional emission standard of zero grams per brake horsepower-hour.

- (13) **PERMANENT REPLACEMENT** means to permanently remove existing off-road equipment which has been in continuous active operation from service, such that the equipment will not be operated within the District, and to replace it with non-polluting alternatives. Equipment which is scrapped, or permanently relocated or sold outside the District, and is demonstrated not to be brought back or sold back into the District, will be considered to be permanently removed.
- (14) **REPOWER** means to replace the existing off-road equipment engine with a certified engine to meet one of the optional emission standards.
- (15) **RETROFIT** means to modify the existing off-road equipment engine with a certified conversion kit to meet one of the optional emission standards. Retrofit may also mean to modify the existing off-road equipment with on-road emission control technologies, tested in accordance with the ARB's test procedures for off-road equipment engines specified in Title 13, California Code of Regulations, to meet one of the optional emission standards, subject to the approval of the Executive Officer or designee in consultation with the ARB.
- (16) **USEFUL LIFE** means the life (in hours) that the equipment retrofitted with alternative fuel conversion kits is expected to meet one of the optional emission standards and is equivalent to the durability period of the certified conversion kit.
- (17) **VOLATILE ORGANIC COMPOUND (VOC)** is any volatile compound of carbon; excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates; ammonium carbonate, and exempt compounds as defined in District Rule 102.
- (18) **ZERO-EMISSION EQUIPMENT** means any equipment which produces zero emissions of any criteria pollutants under any and all possible operational modes and conditions.

(d) **Equipment Operator Requirements**

In order to generate MSERCs, an equipment operator shall:

- (1) implement one or more of the following projects: purchase new low- or zero-emission equipment; or repower, retrofit, or permanently replace existing equipment to meet one of the optional emission standards. Equipment operators who operate equipment without utilizing certified engines or conversion kits shall demonstrate, according to ARB's certification test methods, and as approved by the Executive Officer or designee in consultation with the ARB, that the emission levels of the equipment correspond to one or more of the applicable optional emission standards.

- (2) for projects involving permanent replacement,
  - (A) submit an Off-Road MSERC Application, as specified in subdivision (e), within 90 days of the completion of any permanent replacement which occurs after rule effective date. For projects involving permanent replacement completed prior to rule effective date, the equipment operator shall submit an Off-Road MSERC Application, as specified in subdivision (e), within one year of the rule effective date.
  - (B) annually renew the MSERCs by notifying the Executive Officer or designee in writing of the continued operation of the non-polluting alternative one year following the approval of the Off-Road MSERC Application and every year thereafter.
- (3) for projects not involving permanent replacement,
  - (A) submit an Off-Road MSERC Application, as specified in subdivision (e), within 90 days subsequent to the initial service date of the low- or zero-emission equipment, for projects involving purchasing, repowering, or retrofitting after rule effective date.
  - (B) submit an Off-Road MSERC Application, as specified in subdivision (e), within one year subsequent to rule effective date, for projects involving purchasing prior to rule effective date.
  - (C) following approval of the Off-Road MSERC Application, demonstrate the operation of the low- or zero-emission equipment to the satisfaction of the Executive Officer or designee by submitting the actual operating hours for the six-month period from the initial service date, and the projected operating hours for the subsequent six-month period.
  - (D) annually renew the MSERCs by submitting the actual operating hours for each preceding twelve-month period and the projected operating hours for each subsequent six-month period.
  - (E) verify that the operation of new, repowered, or retrofitted equipment shall not increase emissions of other pollutants, including VOC, CO, PM, and smoke beyond the standards specified in Title 13, California Code of Regulations.

- (4) notify the Executive Officer or designee in writing within 90 days following retirement of the low- or zero-emission equipment or the non-polluting alternative or removal of the equipment from service for an engine replacement or a major engine overhaul. The equipment operator shall ensure that engine replacements and major engine overhauls are performed in accordance with specifications and procedures required by the engine and/or conversion kit manufacturer(s). The equipment operator shall also be responsible for maintaining the engines or conversion kits, meeting optional emission standards, within manufacturer(s)' specifications throughout the credit life.
- (5) use only manufacturer approved facilities for the installation of certified conversion kits ("Manufacturer" refers to the certified conversion kit manufacturer).
- (6) in lieu of using baseline emission standards specified in the ARB's Mobile Source Credit Guidelines, submit emissions test data in accordance with ARB's applicable test procedures and protocols to demonstrate the actual emission level of the existing equipment, subject to the approval of the Executive Officer or designee in consultation with the ARB.

(e) **Off-Road MSERC Application**

- (1) In order to obtain MSERCs, an equipment operator shall submit an Off-Road MSERC Application. The purpose of the Application is to document the purchase, retrofit, repowering or permanent replacement project as well as the operation of the low- or zero-emission equipment or the non-polluting alternative following the initial service date. The Off-Road MSERC Application shall contain specific information including, but not limited to:
  - (A) a description of the repowering, retrofitting, purchasing or permanent replacement project, including at minimum the equipment type, equipment and engine manufacturer, equipment and engine model, engine model year, equipment identification number, or any non-polluting alternative methods or processes which will be used;
  - (B) proof of purchase or lease of the low- or zero-emission equipment or non-polluting alternative, and proof of purchase for certified engines and conversion kits;
  - (C) the initial service date of each low- or zero-emission equipment or the non-polluting alternative;
  - (D) for projects involving permanent replacement, historical records of annual operating hours and fuel consumption for the existing equipment which is permanently replaced, and proof of permanent replacement to the satisfaction of the Executive Officer or designee;

- (E) load factor for each low-emission equipment supported by actual fuel consumption data;
  - (F) emission test results for existing off-road equipment which has been retrofitted with non-certified conversion kits;
  - (G) emission test results for existing off-road mobile equipment from equipment operators seeking to establish baseline emission standard based on actual emission levels;
  - (H) written statement from the equipment operator to verify that the repowering, retrofitting, or upgrading of existing off-road equipment engine was conducted in accordance with engine or conversion kit manufacturer's specifications and procedures;
  - (I) identification of the legal owner of the MSERCs to be issued by the Executive Officer or designee; and
  - (J) intended use of MSERCs pursuant to subdivision (h), if known.
- (2) The Executive Officer or designee shall approve or disapprove the Off-Road MSERC Application in writing.
  - (3) For the purposes of assessing fees, the Off-Road MSERC Application shall be deemed a plan, and the fees shall be assessed in accordance with the provisions of Rule 306.

(f) Issuance of MSERCs

- (1) For projects not involving permanent replacement, MSERCs shall be issued after approval of the Off-Road MSERC Application by the Executive Officer or designee and upon submittal and verification by the Executive Officer or designee of the actual and projected operating hours for each low- or zero-emission equipment as specified in paragraph (d)(3) and in accordance with the MSERC calculation methodology specified in subdivision (g). For projects involving purchasing prior to rule effective date, MSERCs shall be issued based only on the operation of the low- or zero-emission equipment which occurs following the submittal of the Off-Road MSERC Application.

- (2) For projects involving permanent replacement, MSERCs shall be issued upon approval of the Off-Road MSERC Application by the Executive Officer or designee and submittal and verification by the Executive Officer or designee of the annual written notifications of the continued operation of the non-polluting alternative as specified in paragraph (d)(2) and in accordance with the MSERC calculation methodology specified in subdivision (g). For projects involving permanent replacement prior to rule effective date, MSERCs shall be issued based only on the operation of the non-polluting alternative which occurs following the submittal of the Off-Road MSERC Application.
- (3) For all projects, MSERCs shall be issued by the Executive Officer or designee:
  - (A) for NO<sub>x</sub>, VOC, CO, and PM, in accordance with paragraph (g)(1), if mandatory emission standards have been adopted by the ARB or U.S. EPA, and optional emission standards have been specified in the ARB's Mobile Source Credit Guidelines, or if compliance with applicable optional emission standards can be demonstrated, according to ARB's certification test methods, as approved by the Executive Officer or designee in consultation with the ARB; and
  - (B) for SO<sub>x</sub>, in accordance with the MSERC calculation methodology specified in paragraph (g)(2); and
- (4) For all projects, MSERCs shall be issued by the Executive Officer or designee based on continued demonstration of the actual operation of each low- or zero-emission equipment or non-polluting alternative. This demonstration shall start when the equipment or non-polluting alternative is first placed into service, but shall end when the equipment or non-polluting alternative is retired or removed from service for an engine replacement. However, for projects involving purchasing or permanent replacement prior to rule effective date, this demonstration shall start when the Off-Road MSERC Application is submitted. For equipment retrofitted with alternative fuel conversion kits, MSERCs shall end when the useful life of the kit expires.

**(g) MSERC Calculation**

- (1) The total amount of NO<sub>x</sub>, VOC, CO, and PM MSERCs generated when an equipment is permanently replaced, repowered, retrofitted, or when a new low- or zero-emission equipment is purchased shall be calculated by the Executive Officer or designee for each year according to the following formula:

$$\text{MSERC} = \frac{[(S_{\text{base}} - S_{\text{opt}}) \times (\text{HRS} \times \text{HP} \times \text{LF})]}{(454 \times \text{DF})}$$

where:

$$\text{MSERC} = \text{Mobile source emission reduction credits per unit (pounds per year)}$$

$$S_{\text{base}} = \text{Baseline emission standards (grams/bhp-hr)}$$

S <sub>opt</sub>	=	Optional emission standards (grams/bhp-hr) for repowered, retrofitted, or new equipment engine
HRS	=	Annual hours of operation, as specified in paragraph (g)(2)
HP	=	Rated horsepower (hp)
LF	=	Load factor
DF	=	Discount factor, for the purpose of generating credits, equal to 1.0.

Equipment operators should contact the District or ARB to confirm the applicable baseline and optional emission standards before submitting the Off-Road MSERC Application.

- (2) MSERCs issued for SO<sub>x</sub> emission reductions shall be calculated by the Executive Officer or designee according to the following formula:

MSERC	=	$2 \times ((F_{\text{base}} \times S_{\text{base}}) - (F_{\text{opt}} \times S_{\text{opt}}))/DF$
where:		
MSERC	=	Mobile source emission reduction credits (pounds per year)
F <sub>base</sub>	=	amount of fuel used to power equipment targeted for repowering, retrofitting, or permanent replacement (gallons or standard cubic feet per year)
S <sub>base</sub>	=	sulfur concentration in fuel used to power equipment targeted for repowering, retrofitting, or permanent replacement (pounds per gallon or pounds per standard cubic foot)
F <sub>opt</sub>	=	amount of fuel used to power low-emission equipment (gallons or standard cubic feet per year)
S <sub>opt</sub>	=	sulfur concentration in fuel used to power low-emission equipment (pounds per gallon or pounds per standard cubic foot)
DF	=	Discount factor, for the purpose of generating credits, equal to 1.0.

S<sub>base</sub> and S<sub>opt</sub> shall be obtained from the Executive Officer or designee and shall be representative of average sulfur concentrations for applicable fuels used within the boundaries of the District. F<sub>base</sub> and F<sub>opt</sub> shall be submitted by the equipment operator at the same time that annual operating hours are submitted to the Executive Officer or designee pursuant to paragraphs (d)(2) or (d)(3).

- (3) For projects not involving permanent replacement,
- (A) the MSERCs for the first year after initial service date shall be calculated by the Executive Officer or designee based on the actual operating hours for the six-month period following the initial service date and the projected operating hours for the subsequent six-month period. For projects involving purchasing prior to rule effective date, the initial



service date shall be the submittal date of the Off-Road MSERC Application.

- (B) for all subsequent years, the MSERCs shall be based on the actual operating hours for each preceding twelve-month period and the projected operating hours for each subsequent six-month period. The projected operating hours shall not be 50% greater than the actual operating hours for the previous six-month period unless the equipment operator can demonstrate to the satisfaction of the Executive Officer or designee that the projected operating hours shall occur.
- (C) the MSERCs shall be adjusted every year to reflect any difference between the projected operating hours reported in the previous year and the actual operating hours for the same period.
- (4) For projects involving permanent replacement, MSERCs shall be calculated by the Executive Officer or designee based on historical records of operating hours of the replaced equipment. For the first year, MSERCs shall be issued upon approval of the Off-Road MSERC Application. For all subsequent years, MSERCs shall be issued upon submittal of written notification of the continued operation of the non-polluting alternative. For projects involving permanent replacement prior to rule effective date, the initial service date shall be the submittal date of the Off-Road MSERC Application.
- (5) MSERCs shall expire two years after the date of issuance.

(h) Use of MSERCs

- (1) MSERCs may be used for any of the following applications:
  - (A) As RECLAIM Trading Credits. The Executive Officer or designee shall convert MSERCs to RTCs upon submission of MSERCs by the user.
  - (B) As an alternative method of compliance with District Regulation XI rules that have future compliance dates. MSERCs shall not be used to offset emission increases caused by the removal of emission control equipment or replacement of compliant with noncompliant materials subject to Regulation XI. MSERCs must be in existence and designated as an alternative method of compliance in advance of the compliance date.
  - (C) As an alternative method of compliance with District Regulation XV rules that allow the use of MSERCs in accordance with Regulation XV.
  - (D) As New Source Review (NSR) offsets for emission increases at new or modified facilities that are subject to Rule 1303 (b)(2) in accordance with the provisions of Regulation XIII. Pursuant to Rule 504, no variance or series of variances, including emergency and interim variances, shall be

granted for a period in excess of 90 days from the initial granting of a variance, from a permit condition implementing a Regulation XIII offset requirement if such permit condition is based upon the use of MSERCs.

- (E) For voluntary retirement of MSERCs for air quality benefits.
  - (F) As an alternative method of compliance with any District regulations which specifically authorize the use of MSERCs.
- (2) For the purpose of using MSERCs pursuant to subparagraphs (h)(1)(A) and (h)(1)(B), a discount factor equal to 1.2 shall be applied except that a discount factor of 1.0 shall be applied for operation of zero-emission equipment. For other uses pursuant to paragraph (h)(1), a discount factor equal to 1.0 shall be applied unless specified otherwise in District regulations.
  - (3) MSERCs shall only be consumed in the air basin where the equipment operator is based.
  - (4) In order to use MSERCs for the applications listed in subparagraph (1)(B) of this subdivision, the user shall submit a compliance plan to the Executive Officer or designee. The purpose of the compliance plan is to demonstrate compliance with rule requirements, and specify the use of MSERCs.
  - (5) The compliance plan shall contain the following information:
    - (A) Total MSERCs (attach certificates);
    - (B) Identification of the specific rule for which the alternative method of compliance is sought;
    - (C) The period of time for the alternative method of compliance;
    - (D) Number of MSERCs used to substantiate the alternative method of compliance;
    - (E) A quantification of emissions that would result from noncompliance with the rule identified in subparagraph (h)(5)(B), and documentation supporting the emissions quantification.
  - (6) Supporting documentation (applicable for MSERC usage for Regulation XI rules) shall include, but is not limited to:
    - (A) a listing of equipment or materials that are the source of noncompliant VOC, NO<sub>x</sub>, CO, PM, or SO<sub>x</sub> emissions associated with the rule identified in subparagraph (h)(5)(B).
    - (B) a description and operating conditions of equipment listed in subparagraph (h)(6)(A) or composition and rate of use of materials listed in subparagraph (h)(6)(A).

- (C) emission rates associated with the use of equipment or materials listed in subparagraph (h)(6)(A).
  - (D) a listing of equipment or materials that would result in compliance with the rule identified in subparagraph (h)(5)(B).
  - (E) a description and operating conditions of equipment listed in subparagraph (h)(6)(D) or composition and rate of use of materials listed in subparagraph (h)(6)(D).
  - (F) emission rates associated with the use of equipment or materials listed in subparagraph (h)(6)(D).
- (7) The compliance plan shall be written on a form to be specified by the Executive Officer or designee.
  - (8) The Executive Officer or designee shall approve or disapprove the compliance plan. The plan shall be disapproved unless it demonstrates that an equivalent amount of emissions reductions are obtained through the alternative method of compliance.
  - (9) MSERCs may not be used as an alternative method of compliance with Regulation XI rules until the Executive Officer or designee has approved the compliance plan.
  - (10) The user must renew the compliance plan prior to the expiration of MSERCs upon which the plan is based.

**(i) Recordkeeping Requirements**

- (1) Equipment operators shall be responsible for storing and maintaining data records for each low- or zero-emission equipment which generates MSERCs. The data records shall contain operating data (monthly hour-meter logs obtained from non-resettable hour-meters), fuel consumption data (monthly fuel usage logs), maintenance and repair records, and any other necessary data.
- (2) Equipment operators shall maintain a copy of data records described in paragraph (i)(1) for the two most recent years of operation for each low- or zero-emission equipment which generates MSERCs.

**(j) Compliance Auditing and Enforcement**

- (1) The Executive Officer or designee shall be afforded access in the District to audit any files or records created to comply with recordkeeping requirements, specified in subdivision (i), or require equipment operators to submit such records to the Executive Officer or designee upon request.

- (2) The Executive Officer or designee shall be afforded access upon request to inspect the low- or zero-emission equipment, or non-polluting alternative at equipment operators' facilities. The Executive Officer or designee may require emissions testing at a designated emission test facility, at the District's expense, to determine compliance with Rule 1620 requirements for the generation of MSERCs.
- (3) Violation of any provision of this rule, including falsification of information in the Off-Road MSERC Application or annual operating data shall be grounds for the Executive Officer to disallow or void any MSERCs resulting from or associated with the violation, by disapproving or seeking revocation of the Off-Road MSERC Application, and shall be subject to the penalties specified in the Health and Safety Code for violation of District rules.

(k) Requirements for Public Notice

Following a completeness determination of the Off-Road MSERC Application for the use of MSERCs as NSR offsets only, as provided in subparagraph (h)(1)(D), the Executive Officer or designee shall:

- (1) perform the evaluations required to determine compliance with this regulation and make a preliminary written decision, as appropriate, as to whether or not MSERCs, to be used as emission reduction credits (ERCs), should be approved or disapproved. The decision shall be supported by a succinct written analysis; and
- (2) publish a notice by prominent advertisement in at least one newspaper of general circulation in the District stating the preliminary decision of the Executive Officer or designee and where the public may inspect the information. The notice shall provide 30 days from the date of publication for the public to submit written comments on the preliminary decision; and
- (3) at the time notice of the preliminary decision is published, make available for public inspection at the District office the information submitted by the applicant, the supporting analysis for the preliminary decision, and the preliminary decision to grant or deny MSERCs and the reasons therefore. The confidentiality of trade secrets shall be considered in accordance with Section 6254.7 of the Government Code.

(l) Appeal of Disapproval of MSERC Issuance

An applicant may, within 30 days of receipt of notice of disapproval, request the hearing board to hold a hearing on whether the Off-Road MSERC Application was properly refused.