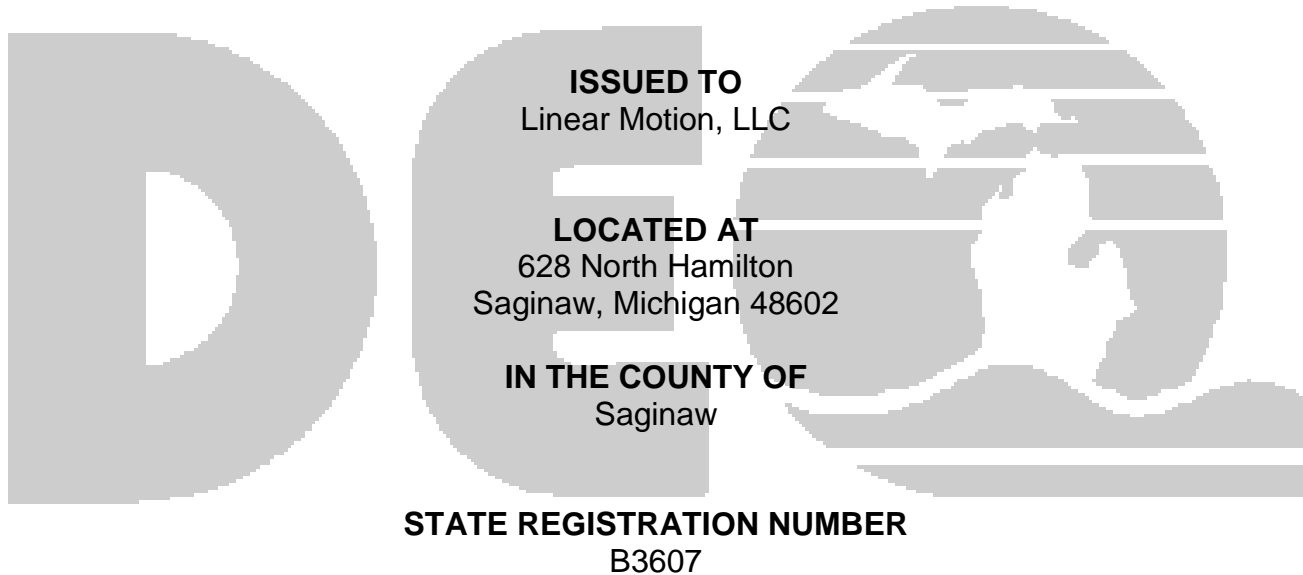


**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

April 29, 2009

**PERMIT TO INSTALL
No. 383-08**



The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: 3/31/2009	
DATE PERMIT TO INSTALL APPROVED: 4/29/2009	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

Section	Page
Alphabetical Listing of Common Abbreviations / Acronyms	2
General Conditions	3
Special Conditions	5
Emission Unit Summary Table.....	5
Special Conditions for EUPGBBLASTER	5
Special Conditions for EUWHLBLASTER.....	6
Special Conditions for EUPLATING.....	7
Flexible Group Summary Table	10
Special Conditions for FGHEATTREAT.....	10
Special Conditions for FGFACILITY	12
Appendix I	14

Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO ₂	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The AQD District Supervisor shall be notified, in writing, of a change in ownership or operational control of the stationary source or emission unit(s) authorized by this Permit to Install pursuant to R 336.1219. The notification shall include all of the information required by R 336.1219(1)(a) and (b). In addition, a new owner or operator must submit a written statement pursuant to R 336.1219(1)(c), agreeing to and accepting the terms and conditions of this Permit to Install, and shall notify the AQD District Supervisor of any change in the contact person for this Permit to Install. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUSCANNER14	A 14-foot vertical scanner with oil quench. The process is equipped with an electric induction ring and quenches for heat treating.	FGHEATTREAT
EUHEATTREAT	The heat treat process equipped with three gas-fired furnaces with integral quench tanks; two gas-fired endothermic gas generators; two draw furnaces (one electric and one gas-fired); and one parts washer.	FGHEATTREAT
EUPGBBLASTER	The Pangborn Rotoblast System controlled by a 1,095 scfm Wheelabrator dust collector.	
EUWHLBLASTER	The Wheelabrator Tumbblast Chamber and a hand sand blaster controlled by a 4,250 scfm Pulsaire dust collector.	
EUPLATING	Two plating/coating lines controlled by a cross-flow scrubber and mist eliminator system.	
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.		

The following conditions apply to: EUPGBBLASTER

DESCRIPTION: A Pangborn Rotoblast system to remove scale from heat treated metal parts.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: A 1,095 scfm Wheelabrator dust collector.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.2 pph	Protocol	EUPGBBLASTER	GC 13	R 336.1331
2. PM	0.015 gr/scf	Protocol	EUPGBBLASTER	GC 13	R 336.1331

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUPGBBLASTER unless the associated dust collector is installed, maintained, and operated in a satisfactory manner. (R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910)

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

NA

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

The following conditions apply to: EUWHLBLASTER

DESCRIPTION: A Wheelabrator Tumbast system to remove scale from heat treated metal parts.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: A 4,250 scfm Pulsair dust collector.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.6 pph	Protocol	EUWHLBLASTER	GC 13	R 336.1331
2. PM	0.015 gr/scf	Protocol	EUWHLBLASTER	GC 13	R 336.1331

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUWHLBLASTER unless the associated dust collector is installed, maintained, and operated in a satisfactory manner. (R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910)

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

NA

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

The following conditions apply to: EUPLATING

DESCRIPTION: Two copper plating lines with phosphating or pickling tanks for surface treatment of metal parts.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Each plating line is controlled by a cross-flow scrubber and mist eliminator system.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Copper	0.04 pph	Protocol	EUPLATING	GC 13	R 336.1225, R 336.1227

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUPLATING unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the packed bed wet scrubber system with mist eliminator, has been submitted within 30 days of permit issuance, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures. The MAP shall include procedures to measure the liquid flowrate to each scrubber, a minimum of once per year, to verify that the liquid flowrate is within manufacturer's specifications for the scrubber spray nozzles.
 - c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1910, R 336.1911)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate any plating line of EUPLATING unless the associated scrubber and mist eliminator system installed, maintained, and operated in a satisfactory manner. Proper operation includes but is not limited to maintaining pump discharge pressure within a range as specified by the manufacturer. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall equip and maintain each packed bed wet scrubber system with mist eliminator in EUPLATING with a pump discharge pressure gauge. **(R 336.1224, R 336.1225, R 336.1910)**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall monitor, in a satisfactory manner, the pump discharge pressure for each of the four recirculation pumps associated with the packed bed wet scrubber system with mist eliminator in EUPLATING on a continuous basis. **(R 336.1224, R 336.1225, R 336.1910)**

2. The permittee shall keep, in a satisfactory manner, daily records of a once per day reading of both the pump discharge pressure and visual verification of return water flow to the holding tanks for the packed bed wet scrubber system with mist eliminator in EUPLATING. **(R 336.1224, R 336.1225, R 336.1910)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV1	32	49.3	R 335.1225
2. SV2	32	49.3	R 335.1225
3. SV3	34	49.3	R 335.1225
4. SV4	44	49.3	R 335.1225

IX. OTHER REQUIREMENTS

NA

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGHEATTREAT	All heat treat processes at the facility	EUSCANNER14, EUHEATTREAT
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

The following conditions apply to: FGHEATTREAT

DESCRIPTION: All heat-treat processes and equipment at the facility

Emission Units: EUSCANNER14 and EUHEATTREAT

POLLUTION CONTROL EQUIPMENT: No control

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Particulate	16.0 tpy	12-rolling time period	FGHEATTREAT	VI 1, 2, 3	R 336.1205, R 336.1331

II. MATERIAL LIMITS

Material	Limit*	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Quench Oil	3,470 gallons	12-month rolling time period	FGHEATTREAT	VI 2	R 336.1205, and R 336.1331

* The net quench oil usage is defined as the amount of quench oil added to FGHEATTREAT to bring the quench oil levels up to starting levels less any amount of quench oil reclaimed, disposed of, or spilled/cleaned up.

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1205 , R 336.1331)**
2. The permittee shall record and calculate the particulate (oil mist) emission rate from FGHEATTREAT for each calendar month, using a material balance for quench oil usage (Appendix I). All monthly quench oil purchased or monthly usage rate to replenish lost quench oil (column A), amount of spent oil sent off-site for recycling (column B), amount of spent oil or sludge sent off-site for disposal (column C), amount of oil spilled (column D) and oil emission calculation (column E) records shall be kept on file for a period of at least five years and made available to the Department upon request. **(R 336.1205, R 336.1331)**
3. Monthly particulate emissions from FGHEATTREAT shall be calculated by multiplying the oil emission rate (or column E in gallons/month) by the density of quench oil from its Material Safety Data Sheet kept on file. The particulate emissions in lbs/month divided by 2000 will determine the monthly particulate emissions in tons per month. This monthly particulate emission rate will be added to the preceding 11-month total particulate emission rate to determine a 12-month rolling particulate emission rate in tons per year (tpy). **(R 336.1205, R 336.1331)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

The following conditions apply Source-Wide to: FGFACILITY

POLLUTION CONTROL EQUIPMENT:

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Each Individual HAP	Less than 9 tpy *	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	R 336.1205(3)
2. Aggregate HAPs	Less than 22.5 tpy *	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	R 336.1205(3)
* Beginning on permit issuance, and continuing for the first 12 calendar months, this limit applies to the cumulative total HAP emissions. Thereafter, the limit shall become a 12-month rolling limit.					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(3))**
2. The permittee shall keep, in a satisfactory manner, individual and aggregate HAP emission calculations determining the annual emission rate of each in tons per 12-month rolling time period as determined at the end of each calendar month, as required by SC I.1 and I.2. For the first month following permit issuance, the calculations shall include the summation of emissions from the 11-month period immediately preceding the issuance date. For each month thereafter, calculations shall include the summation of emissions for the appropriate number of months prior to permit issuance plus the months following permit issuance for a total

of 12 consecutive months. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

APPENDIX APPENDIX I
Linear Motion, LLC
Saginaw, Michigan

PLANT QUENCH-OIL BALANCE FOR YEAR _____

<u>Month</u>	A ⁽¹⁾ <u>Purchased</u> (Gallons/Month)	B ⁽²⁾ <u>Reclaimed</u> (Gallons/Month)	C ⁽³⁾ <u>Disposed</u> (Gallons/Month)	D ⁽⁴⁾ <u>Spill/Clean-Up</u> (Gallons/Month)	E ⁽⁵⁾ <u>Emission</u> (Gallons/Month)
Jan.					
Feb.					
Mar.					
April					
May					
June					
July					
August					
Sept.					
Oct.					
Nov.					
Dec.					

(1) New oil purchased to replenish lost quench oil.

(2) Spent oil transported to off-site reclaimer.

(3) Oil in sludge generated from tank cleaning; sent to off-site disposal facility.

(4) Oil lost to spill or used for clean-up.

(5) Oil emission: $E = A - B - C - D$.

Note: A, B, C, and D are the amounts or volumes of liquid oil only and should not include any solid content or residues.

PLANT QUENCH-OIL BALANCE FOR YEAR _____

<u>Month</u>	<u>A</u> ⁽¹⁾ <u>Purchased</u> (Gallons/Month)	<u>B</u> ⁽²⁾ <u>Reclaimed</u> (Gallons/Month)	<u>C</u> ⁽³⁾ <u>Disposed</u> (Gallons/Month)	<u>D</u> ⁽⁴⁾ <u>Spill/Clean-Up</u> (Gallons/Month)	<u>E</u> ⁽⁵⁾ <u>Emission</u> (Gallons/Month)
Jan.					
Feb.					
Mar.					
April					
May					
June					
July					
August					
Sept.					
Oct.					
Nov.					
Dec.					

(1) New oil purchased to replenish lost quench oil.

(2) Spent oil transported to off-site reclaimer.

(3) Oil in sludge generated from tank cleaning; sent to off-site disposal facility.

(4) Oil lost to spill or used for clean-up.

(5) Oil emission: $E = A - B - C - D$.

Note: A, B, C, and D are the amounts or volumes of liquid oil only and should not include any solid content or residues.