

**PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY**

150 West Congress Street • Tucson, AZ 85701 • Phone: (520) 740-3340

**AIR QUALITY OPERATING PERMIT**

(As required by Title 17.12, Article II, Pima County Code)

**ISSUED TO:**

**IBM Corp  
As Managing Operator For  
Campus Research Corporation**

**The Project At The University of Arizona  
Science and Technology Park**

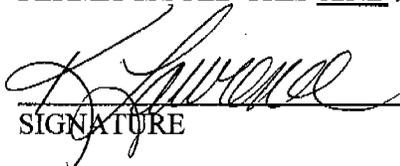
**9018 S Rita Road  
Tucson, AZ 85747**

*This air quality operating permit does not relieve applicant of  
responsibility for meeting all air pollution regulations.*

THIS PERMIT ISSUED SUBJECT TO THE FOLLOWING Conditions contained in Attachments  
"A", "B", "C" and "D"

PDEQ PERMIT NUMBER 260 PERMIT CLASS II EXPIRATION DATE FEBRUARY 01, 2011

PERMIT ISSUED THIS 02ND DAY OF FEBRUARY, TWO THOUSAND AND SIX

  
SIGNATURE

Kathi Lawrence Environmental Planning Manager, PDEQ  
TITLE

**PERMIT ISSUED TO: IBM CORP AS MANAGING OPERATOR FOR  
CAMPUS RESEARCH CORPORATION:  
The Project At The University of Arizona Science and Technology Park**

**PERMIT NUMBER 260**

**SUMMARY**

This air quality permit is issued to the IBM Corp As Managing Operator For Campus Research Corporation. The air quality permit applies to the facility referred to as "The Project At The University of Arizona Science and Technology Park", herein called 'The Project'. The Project is a light industry park.

The Project operates two dual fired boilers (used at the central utility plant), up to seven diesel-fired generators that may be used for electrical power generation and a natural gas fired brine-dewatering unit (used at the industrial wastewater treatment plant).

The diesel fired emergency generators and dual fired boilers are sufficiently large enough that the emissions from the units would result in the source sustaining a major category for NOx, CO and PM<sub>10</sub>. The uncontrolled emissions from the facility when the boilers are exclusively firing distillate fuel oil would increase the potential to emit, resulting in the source additionally becoming a major category for SOx. Consequently, the source has agreed to voluntarily accept a synthetic minor limitation to reduce the potential to emit below major source thresholds.

This permit limits each of the diesel fired emergency generators to operate no more than 500 hours per year and the dual fired boilers to fire no greater than 960,000 gallons of distillate diesel per year.

The Project is located in an area that is in attainment for all criteria pollutants. The following tables summarize the potential to emit of the source. These emission values were derived using the information contained in the revision application dated May 2, 2005 and from the Environment Protection Agency standard emission factors in AP-42, Sections 1.3, 1.4, 3.3 and 3.4.

The Controlled emission values presented in the table below are for information purposes only and are not intended to be enforceable limits.

<u>Potential to Emit (Tons per Year)</u>						
Sourcewide Emissions (Controlled*)	Nitrogen Oxides	Carbon Monoxide	Volatile Organic Compounds	Sulfur Dioxide	Particulate Matter	Hazardous Air Pollutants
Diesel Fired Generators, Dual Fuel Fired Boilers and a Natural Gas Fired Brine Dewatering Unit	65.66	35.26	3.05	66.49	4.79	0.61

\* Generators operating 500 hours per year, dual fuel fired boilers limited to firing no greater than 960,000 gallons of distillate fuel oil per year, and brine dewatering unit operating 8760 hours per year.

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**PERMIT NUMBER 260**

**PART "A": GENERAL PROVISIONS (Revised 06/01/05)  
(References to PCC are references to Title 17 of the Pima County Code)**

- I. PERMIT EXPIRATION AND RENEWAL [A.R.S. § 49-480.A, PCC 17.12.160.C.2 & PCC 17.12.180.A.1]
- A. This permit is valid for a period of five years from the date of issuance of the permit.
- B. The Permittee shall submit an application for renewal of this permit at least 6 months, but not greater than 18 months prior to the date of permit expiration.
- II. COMPLIANCE WITH PERMIT CONDITIONS [PCC 17.12.180.A.8.a & b]
- A. The Permittee shall comply with all conditions of this permit including all applicable requirements of Arizona air quality statutes and the air quality rules. Any permit noncompliance constitutes a violation of the Arizona Revised Statutes and is grounds for enforcement action; for permit termination, revocation and reissuance, or revision, or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act.
- B. Need to halt or reduce activity not a defense. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE [PCC 17.12.180.A.8.c & PCC 17.12.270]
- A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, or termination; or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- B. The permit shall be reopened and revised under any of the following circumstances:
1. Additional applicable requirements under the Act become applicable to a major source. Such reopening shall only occur if there are three or more years remaining in the permit term. The reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to PCC 17.12.280. Any permit reopening required pursuant to this paragraph shall comply with provisions in PCC 17.12.280 for permit renewal and shall reset the five-year permit term.

2. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit.
  3. The Control Officer or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
  4. The Control Officer or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.
- C. Proceedings to reopen and issue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Such reopenings shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in paragraph III.B.1 of this Part shall not result in the resetting of the five-year permit term.

#### IV. POSTING OF PERMIT

[PCC 17.12.080]

- A. Permittee shall post such permit, or a certificate of permit issuance on location where the equipment is installed in such a manner as to be clearly visible and accessible. All equipment covered by the permit shall be clearly marked with one of the following:
1. Current permit number.
  2. Serial number or other equipment number that is also listed in the permit to identify that piece of equipment.
- B. In the event that the equipment is so constructed or operated that such permit cannot be so placed, the permit shall be mounted so as to be clearly visible in an accessible place within a reasonable distance of the equipment or maintained readily available at all times on the operating premises.
- C. A copy of the complete permit shall be kept on the site.

#### V. FEE PAYMENT

[PCC 17.12.180.A.9 & PCC 17.12.510]

Permittee shall pay fees to the Control Officer pursuant to A.R.S. § 49-480.D and PCC 17.12.510.

#### VI. ANNUAL EMISSIONS INVENTORY QUESTIONNAIRE

[PCC 17.12.320]

- A. When requested by the Control Officer, the Permittee shall complete and submit an annual emissions inventory questionnaire. The questionnaire is due by March 31 or ninety days after the Control Officer makes the request and provides the inventory form each year, whichever occurs later, and shall include emission information for the previous calendar year.
- B. The questionnaire shall be on a form provided by or approved by the Control Officer and shall include the information required by PCC 17.12.320.

VII. COMPLIANCE CERTIFICATION

[PCC 17.12.180.A.5 & PCC 17.12.220.A.2]

Permittee shall submit to the Control Officer a compliance certification that describes the compliance status of the source with respect to each permit condition. Certifications shall be submitted as specified in Part "B" of this permit.

A. The compliance certification shall include the following:

1. Identification of each term or condition contained in the permit including emission limitations, standards, or work practices that are the basis of the certification;
2. Identification of method(s) or other means used by the owner or operator for determining the compliance status of the source with each term and condition during the certification period. Such methods and other means shall include, at a minimum, the methods and means required under the monitoring, related recordkeeping and reporting sections of this permit;
3. The status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall identify each deviation and take it into account in the compliance certification; and
4. A progress report on all outstanding compliance schedules submitted pursuant to PCC 17.12.220

B. A copy of all compliance certifications for Class I permits shall also be submitted to the EPA Administrator.

The address for the EPA administrator is:

**EPA Region 9 Enforcement Office, 75 Hawthorne St (Air-5), San Francisco, CA 94105**

VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS

[PCC 17.12.220.A.3]

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required by this permit shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

IX. INSPECTION AND ENTRY

[PCC 17.12.220.A.4]

The Permittee shall allow the Control Officer or the authorized representative of the Control Officer upon presentation of proper credentials to:

- A. Enter upon the Permittee's premises where a source is located or emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;
- B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;

- C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution Control equipment), practices, or operations regulated or required under the permit;
- D. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and
- E. Record any inspection by use of written, electronic, magnetic and photographic media.

X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD  
[PCC 17.12.160.C.4]

If this source becomes subject to a standard promulgated by the Administrator pursuant to Section 112(d) of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.

XI. AFFIRMATIVE DEFENSES FOR EXCESS EMISSIONS DUE TO MALFUNCTIONS, STARTUP, AND SHUTDOWN  
[A.R.S. §49-480.B & A.A.C. 18-2-310]

A. Applicability. This permit condition establishes affirmative defenses for certain emissions in excess of an emission standard or limitation and applies to all emission standards or limitations except for standards or limitations:

1. Promulgated pursuant to Sections 111 or 112 of the Act,
2. Promulgated pursuant to Titles IV or VI of the Clean Air Act,
3. Contained in any Prevention of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the U.S. E.P.A.,
4. Contained in PCC 17.16.280.F, or
5. Included in a permit to meet the requirements of PCC 17.16.590.A.5.

B. Affirmative Defense for Malfunctions

Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. The owner or operator of a source with emissions in excess of an applicable emission limitation due to malfunction has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the owner or operator of the source has complied with the reporting requirements of XIII.B of this Part and has demonstrated all of the following:

1. The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution Control equipment beyond the reasonable Control of the operator;

2. The air pollution Control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
3. If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the owner or operator satisfactorily demonstrated that the measures were impracticable;
4. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;
5. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;
6. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;
7. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in PCC Chapter 17.08 that could be attributed to the emitting source;
8. The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by better operations and maintenance practices.
9. All emissions monitoring systems were kept in operation if at all practicable; and
10. The owner or operator's actions in response to the excess emissions were documented by contemporaneous records.

C. Affirmative Defense for Startup and Shutdown

1. Except as provided in XI.C.2, and unless otherwise provided for in the applicable requirement, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. The owner or operator of a source with emissions in excess of an applicable emission limitation due to startup and shutdown has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the owner or operator of the source has complied with the reporting requirements of XIII.B of this Part and has demonstrated all of the following:
  - a. The excess emissions could not have been prevented through careful and prudent planning and design;
  - b. If the excess emissions were the result of a bypass of Control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution Control equipment, production equipment, or other property;

- c. The source's air pollution Control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
- d. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;
- e. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;
- f. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in PCC Chapter 17.08 that could be attributed to the emitting source;
- g. All emissions monitoring systems were kept in operation if at all practicable; and
- h. The owner or operator's actions in response to the excess emissions were documented by contemporaneous records.

2. If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to XI.B.

D. Affirmative Defense for Malfunctions During Scheduled Maintenance

If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to XI.B.

E. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under XI.B or C, the owner or operator of the source shall demonstrate, through submission of the data and information required by this Section and XII.B, that all reasonable and practicable measures within the owner or operator's Control were implemented to prevent the occurrence of the excess emissions.

XII. RECORD KEEPING REQUIREMENTS

[PCC 17.12.180.A.4]

- A. Permittee shall keep records of all required monitoring information including, but not limited to, the following:
  - 1. The date, place as defined in the permit, and time of sampling or measurements;
  - 2. The date(s) analyses were performed;
  - 3. The name of the company or entity that performed the analyses;
  - 4. A description of the analytical techniques or methods used;
  - 5. The results of such analyses; and

6. The operating conditions as existing at the time of sampling or measurement.
- B. Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

### XIII. REPORTING REQUIREMENTS

[PCC 17.12.180.A.5.a]

The Permittee shall comply with all of the reporting requirements of this permit. These include all of the following:

- A. Compliance certifications pursuant to Part "A", Section VII of this permit.
- B. Excess Emissions Reporting Requirements [A.R.S. §49-480.B, A.A.C. 18-2-310.01 & PCC 17.28.065]
  1. The owner or operator of any source shall report to the Control Officer any emissions in excess of the limits established by this permit. The report shall be in two parts as specified below:
    - a. Notification by telephone or facsimile within 24 hours of the time the owner or operator first learned of the occurrence of excess emissions that includes all available information from XIII.B.2.

The number to call to report excess emissions is **520-740-3340**.
    - b. Detailed written notification by submission of an excess emissions report within 72 hours of the notification under XIII.B.1.a.

**PDEQ 150 W. Congress St. Tucson AZ, 85701**
  2. The excess emissions report shall contain the following information:
    - a. The identity of each stack or other emission point where the excess emissions occurred;
    - b. The magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;
    - c. The time and duration or expected duration of the excess emissions;
    - d. The identity of the equipment from which the excess emissions emanated;
    - e. The nature and cause of the emissions;
    - f. The steps taken, if the excess emissions were the result of a malfunction, to remedy the malfunction and the steps taken or planned to prevent the recurrence of the malfunctions;

- g. The steps that were or are being taken to limit the excess emissions; and
  - h. If the source's permit contains procedures governing source operation during periods of startup or malfunction and the excess emissions resulted from startup or malfunction, a list of the steps taken to comply with the permit procedures.
3. In the case of continuous or recurring excess emissions, the notification requirements of this Section shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in the notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification pursuant to XIII.B.1 and 2.

- C. ~~Permit Deviations (Other Than Excess Emissions) Reporting Requirements.~~ The Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. For the purposes of this condition, "promptly report" shall mean that the Permittee submitted the report to the Control Officer by certified mail or hand-delivery within two working days of the of time the deviation was discovered.
- D. Reporting requirements listed in Part "B" of this permit.

XIV. DUTY TO PROVIDE INFORMATION

[PCC 17.12.160.G & PCC 17.12.180.A.8.e]

- A. The Permittee shall furnish to the Control Officer, within a reasonable time, any information that the Control Officer may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Control Officer copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee, for Class I sources, shall furnish an additional copy of such records directly to the Administrator along with a claim of confidentiality.
- B. If the Permittee has failed to submit any relevant facts or if the Permittee has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

XV. PERMIT AMENDMENT OR REVISION

[PCC 17.12.240, PCC 17.12.250 & PCC 17.12.260]

Permittee shall apply for a permit amendment or revision for changes to the facility which do not qualify for a facility change without revision under Section XVI, as follows:

- A. Administrative Permit Amendment (PCC 17.12.240.);
- B. Minor Permit Revision (PCC 17.12.250.);
- C. Significant Permit Revision (PCC 17.12.260.).

The applicability and requirements for such action are defined in the above referenced regulations.

XVI. FACILITY CHANGE WITHOUT PERMIT REVISION

[PCC 17.12.230]

- A. Permittee may make changes at the permitted source without a permit revision if all of the following apply:
1. The changes are not modifications under any provision of Title I of the Act or under A.R.S. § 49-401.01(17).
  2. The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions.
  3. The changes do not violate any applicable requirements or trigger any additional applicable requirements.
  4. The changes satisfy all requirements for a minor permit revision under PCC 17.12.250.
  5. The changes do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.
- B. The substitution of an item of process or pollution Control equipment for an identical or substantially similar item of process or pollution Control equipment shall qualify as a change that does not require a permit revision, if it meets all of the requirements of subsections (A) and (C) of this Section.
- C. For each such change under subsections A and B of this Section, a written notice by certified mail or hand delivery shall be received by the Control Officer and, for Class I permits, the Administrator, a minimum of 7 working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided less than 7 working days in advance of the change but must be provided as far in advance of the change as possible or, if advance notification is not practicable, as soon after the change as possible. Each notification shall include:
1. When the proposed change will occur.
  2. A description of each such change.
  3. Any change in emissions of regulated air pollutants.
  4. The pollutants emitted subject to the emissions trade, if any.
  5. The provisions in the implementation plan that provide for the emissions trade with which the source will comply and any other information as may be required by the provisions in the implementation plan authorizing the trade.
  6. If the emissions trading provisions of the implementation plan are invoked, then the permit requirements with which the source will comply.
  7. Any permit term or condition that is no longer applicable as a result of the change.

XVII. TESTING REQUIREMENTS

[PCC 17.12.050]

A. Operational Conditions During Testing

Tests shall be conducted while the unit is operating at full load under representative operational conditions unless other conditions are required by the applicable test method or in this permit. With prior written approval from the Control Officer, testing may be performed at a lower rate. Operations during start-up, shutdown, and malfunction (as defined in PCC 17.04.340.A.) shall not constitute representative operational conditions unless otherwise specified in the applicable requirement.

B. Test Plan

At least 14 calendar days prior to performing a test, the Permittee shall submit a test plan to the Control Officer, in accordance with PCC 17.12.050.B, and the Arizona Testing Manual. This test plan must include the following:

1. test duration;
2. test location(s);
3. test method(s); and
4. source operation and other parameters that may affect test results.

C. Stack Sampling Facilities

Permittee shall provide or cause to be provided, performance testing facilities as follows:

1. Sampling ports adequate for test methods applicable to the facility;
2. Safe sampling platforms;
3. Safe access to sampling platforms; and
4. Utilities for sampling and testing equipment.

D. Interpretation of Final Results

Each performance test shall consist of three separate runs using the required test method. Each run shall be conducted in accordance with the applicable standard and test method. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. If a sample is accidentally lost or conditions occur which are not under the Permittee's Control and which may invalidate the run, compliance may, upon the Control Officer's approval, be determined using the arithmetic mean of the other two runs.

E. Report of Final Test Results

A written report of the results of all performance tests shall be submitted to the Control Officer within 30 days after the test is performed. The report shall be submitted in accordance with the Arizona Testing Manual and PCC 17.12.050.A.

F. Cessation of Testing After the First Run Has Started

If the Control Officer or the Control Officer's designee is not present, tests may only be stopped for good cause. Good cause includes, forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions or other conditions beyond the Permittee's Control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation that demonstrates good cause must be submitted.

XVIII. PROPERTY RIGHTS

[PCC 17.12.180.A.8.d]

This permit does not convey any property rights of any sort, or any exclusive privilege.

XIX. SEVERABILITY CLAUSE

[PCC 17.12.180.A.7]

The provisions of this permit are severable. If any provision of this permit is held invalid, the remainder of this permit shall not be affected thereby.

XX. PERMIT SHIELD

[PCC 17.12.310]

Compliance with the conditions of this permit shall be deemed compliance with the applicable requirements identified in Part "C" of this permit. The permit shield shall not apply to any change made pursuant to Section XV.B of this Part and Section XVI of this Part.

XXI. ACCIDENT PREVENTION REQUIREMENTS UNDER THE CLEAN AIR ACT (CAA Section 112(r))

Should this stationary source, as defined in 40 CFR Section 68.3, become subject to the accidental release prevention regulations in Part 68, then the Permittee shall submit a risk management plan (RMP) by the date specified in Section 68.10 and shall certify compliance with the requirements of Part 68 as part of the semiannual compliance certification as required by 40 CFR Part 70 and Part "B" of this permit.

**PERMIT ISSUED TO: IBM CORP AS MANAGING OPERATOR FOR CAMPUS RESEARCH CORPORATION:  
The Project At The University of Arizona Science and Technology Park**

**PERMIT NUMBER 260**

**Summary of Permit Requirements**  
(References to PCC are references to Title 17 of the Pima County Code)

Emission Unit	Pollutants Emitted	Control Measures	Emission Limits/Standards	Monitoring	Recordkeeping	Reporting	Testing Frequency/Methods
Dual Fired Boilers and Natural Gas Fired Brine Dewatering Unit.	PM <sub>10</sub> , SO <sub>x</sub> , NO <sub>x</sub> , CO	None	$E \leq 1.02 Q^{0.769}$ Limit Opacity $\leq 20\%$ from point sources. No visible emissions beyond property line. $< 1.0 \text{ lb. SO}_2 / \text{MMBtu}$ heat input when low sulfur oil is fired. (Applicable when the dual fired boilers are fired by oil) Fuel limitation: No greater than 960,000 gallons of fuel oil combusted in any 12 consecutive month period. Prohibition of the use of high sulfur oil. Fuel sulfur content limitation. Only pipeline quality gas is to be combusted when applicable.	Demonstration to show compliance with emission limit when required by the Control Officer. Quarterly observation of exhaust stacks for visible emissions. Compliance with visibility determination. Demonstration that pipeline quality gas is fired in equipment when applicable. Monitor the amount of fuel oil combusted.	Visible emissions observations and if required corrective actions undertaken. Maintain all documentation showing compliance with fuel sulfur content limitation. Record the monthly fuel oil combusted totals. Monitor and record the rolling monthly fuel oil combusted totals.	(See General Standards)	When required, EPA Test Method 5 shall be used to monitor compliance with particulate matter standard. When required, EPA Test Method 9 shall be used to monitor compliance with the opacity standard. When required, EPA Test Method 6 shall be used to monitor compliance with the sulfur dioxide standard.

Summary of permit conditions continued on page 16

Emission Unit	Pollutants Emitted	Control Measures	Emission Limits/Standards	Monitoring	Recordkeeping	Reporting	Testing Frequency/Methods
Emergency Generators	PM <sub>10</sub> SO <sub>x</sub> NO <sub>x</sub> CO	None.  (Each generator is limited to no more than 500 hours of operation in any 12 consecutive month period.)	$E=1.02 Q^{0.769}$  Limit Opacity $\leq 40\%$ from point sources  Limit Opacity $\leq 60\%$ for $\leq 10$ minutes when cold startup or under accelerated load.  Sulfur dioxide emission limitation $<1.0$ lb/MMBtu.  Fuel limited to low sulfur diesel fuel ( $<0.9\%$ by weight sulfur)  500-hour operational limitation per 12 consecutive month period.	Quarterly observation of exhaust stacks for visible emissions  Install and maintain a non-resetable engine hour meter on each generator.	Monitor and record the monthly hour totals of operation for each engine.  Monitor and record the rolling monthly hour totals of operation for each engine.  Maintain operational log for each generator as identified in the permit.  Maintain operational log of the visible emission observation results.	Report any daily period during which the sulfur content of the fuel being fired is greater than 0.8%.  (See also General Standards)	EPA Test Method 9 may be used to monitor compliance with the opacity standard.  When required, EPA test Method 5 shall be used to monitor compliance with the particulate matter standard.  EPA test Method 6 shall be used to monitor compliance with the sulfur dioxide standard.  ASTM D-129-91 or an equivalent shall be used to determine the sulfur content of liquid fuels.
General Standards  Source Wide Requirements.	None	None	Limit odor from equipment so as not to cause air pollution. Application of good modern practices to control odor.	None	Permit posting and location and retention of all records.	Excess emissions and permit deviations.  Semiannual summary reports of required monitoring.  Annual compliance certification reports.  Emissions inventory reports as required.	

**PERMIT ISSUED TO: IBM CORP AS MANAGING OPERATOR FOR  
CAMPUS RESEARCH CORPORATION:  
The Project At The University of Arizona Science and Technology Park**

**PERMIT NUMBER 260**

**Part "B": SPECIFIC CONDITIONS**

**I. Applicability**

This is the December 2005 renewal of the initial issued five-year permit for this facility in response to a permit application received on 05/09/05. The source is continuing to voluntarily accept a limitation on the fuel usage in the two large boilers, resulting in the facility becoming a synthetic minor Class II source.

This Part contains requirements that apply to the Boilers and Emergency Generators at the facility. Applicable regulations include the Pima County State Implementation Plan (SIP) and Title 17 of the Pima County Code (PCC). A complete list of applicable requirements may be found in Part C and a list of applicable equipment may be found in Part D.

**II. Emission Limits and Standards**

**A. Dual Fuel Fired Boilers and Natural Gas Fired Brine Dewatering Unit**

The provisions of this Section are applicable to equipment subject to the Pima County SIP and Title 17 of the PCC, as such in Part "D" Table 1 of this permit.

**1. Particulate Matter Standard**

The Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from any fuel burning operation having a heat input rate of 4200 million Btu per hour or less, in excess of the amounts calculated by the following equation:

$$E = 1.02 Q^{0.769}$$

[PCC 17.16.165.C.1]

where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.  
Q = the heat input in million Btu per hour.

**2. Visibility Limiting Standards**

a. The Permittee shall not cause, allow or permit to be emitted into the atmosphere from any fuel-burning operation, smoke, excluding water vapor, which exceeds 40 percent opacity.

[SIP Rule 321 & PCC 17.16.130.B.2]

**[Federally Enforceable Condition]**

b. After April 23, 2006, except as otherwise provided in this permit relating to specific types of sources, the opacity of any plume or effluent from an existing, stationary, point source shall not exceed 20%. Opacities >40% represent exceedance of the federally enforceable condition.

[SIP Rule 321 & PCC 17.16.130.B.3]

**[Federally Enforceable Condition]**

- c. The Permittee shall not cause or permit the airborne diffusion of visible emissions, excluding water vapor, beyond the property boundary line without appropriately controlling the emissions at the point of discharge. [SIP Rule 343, & PCC 17.16.050.D]

**[Federally Enforceable Condition]**

- d. The provisions of Section II.A.2.b of this part does not apply when the naturally induced wind speed exceeds 25 miles per hour as estimated by a certified visible emissions evaluator using the Beaufort Scale of Wind-Speed equivalents, or as recorded by a U.S. weather Bureau Station or a U.S. government military installation. [SIP Rule 343]

**[Federally Enforceable Condition]**

3. Sulfur Dioxide Limitation (Boilers Only)

Sulfur dioxide (SO<sub>2</sub>) emissions shall not exceed 1.0 pound per million Btu heat input when low sulfur oil is fired. [PCC 17.16.165.E]

4. Fuel Limitation

(Parts a through c of this subpart is applicable to the Boilers only).

- a. When firing fuel oil in the Cleaver Brooks boilers, the Permittee shall not consume more than 960,000 gallons during any 12-consecutive month period. [PCC 17.12.190.B & PCC 17.12.180.A.2]

**[Federally Enforceable Condition]**

**[Material Permit Condition]**

- b. The Permittee shall be prohibited from the use of high sulfur oil. [PCC 17.16.165.G]

- c. Compliance with the fuel limitation requirement in Section II.A.4.b of this part shall be demonstrated by ensuring only low sulfur oil (fuel oil containing <0.9% by weight of sulfur) is burned in the applicable equipment. [PCC 17.12.180.A.2]

**[Material Permit Condition]**

- d. The Permittee shall combust only pipeline quality natural gas when applicable in the boilers and at all times within the Brine Dewatering Unit. For the purpose of this Part, a pipeline quality natural gas shall mean natural gas that meets the requirements of the Federal Energy Regulatory Commission (FERC) approved Tariff agreement that limits transmission to pipeline quality natural gas of sulfur content to less than 5 grains of sulfur per 100 scf of natural gas and a lower heating value greater than or equal to 967 Btu/ft<sup>3</sup>. [PCC 17.12.180.A.2]

**[Material Permit Condition]**

B. Emergency Generators

The provisions of this Section are applicable to equipment subject to the Pima County SIP and Title 17 of the PCC, as such in Part "D" Table 3 of this permit.

1. Emissions of particulate matter shall not exceed: [PCC 17.16.340.C.1]

$$E = 1.02Q^{0.769}$$

where:

E = the maximum allowable particulate emissions rate in pounds mass per hour.

Q = the heat input in million Btu per hour.

2. Opacity Standard

- a. No person shall cause, allow, or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period greater than ten consecutive seconds that exceeds 40 percent opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

[SIP Rule 321 & PCC 17.16.340.E]

**[Federally Enforceable Condition]**

- b. The maximum allowable average opacity for cold (i.e., within 10 consecutive minutes of startup) or loaded (i.e., being accelerated under load) diesel engines shall not exceed 60%.

[SIP Rule 321 & PCC 17.16.040]

**[Federally Enforceable Condition]**

3. Sulfur Dioxide Standard

Sulfur dioxide (SO<sub>2</sub>) emissions shall not exceed 1.0 pound per million Btu heat input when low sulfur oil is fired.

[PCC 17.16.340.F]

4. Fuel Limitation

- a. The Permittee shall be prohibited from the use of high sulfur oil.

[PCC 17.16.340.H]

- b. Compliance with the fuel limitation requirement in Section II.A.4.a of this part shall be demonstrated by ensuring only low sulfur oil (fuel oil containing <0.9% by weight of sulfur) is burned in the applicable equipment.

[PCC 17.12.190.B & PCC 17.16.340.H]

**[Material Permit Condition]**

5. Operational Hour Limitation

Permittee shall not operate any generator more than 500 hours during any 12-consecutive month period.

[PCC 17.12.190.B]

**[Federally Enforceable Condition]**

**[Material Permit Condition]**

C. General Standards

Odor Limiting Standard

The permittee shall not cause or permit emissions from malodorous matter to cross a property line between the source and a residential, recreational, institutional, educational, retail sales, hotel, or business premise without minimizing the emissions by applying good modern practices.

[SIP Rule 344.A & PCC 17.16.030]

**[Federally Enforceable Condition]**

### III. Monitoring Requirements

[PCC 17.12.180.A.3]

#### A. Dual Fired Boilers and Natural Gas Fired Brine Dewatering Unit

The provisions of this Section are applicable to equipment subject to the Pima County SIP and Title 17 of the PCC, as such in Part "D" Table 1 of this permit.

1. A demonstration to show compliance with the emission limit for particulate matter pursuant to Section II.A.1 of this part shall not be required unless the Control Officer has reason to believe that conditions may exist which have the potential to cause a violation of the applicable requirement. [PCC 17.12.180.A.2]
2. The Permittee shall observe the exhaust stacks of each boiler and the brine-dewatering unit at least once during each quarter for evidence of visible emissions. [PCC 17.12.180.A.3]
3. Compliance with the visibility limiting standard referenced in Section II.A.2 of this part shall be determined by using EPA Test Method 9. [PCC 17.12.180.A.3 & PCC 17.16.040]
4. A demonstration to show compliance with the sulfur dioxide emission standard in II.A.3 is not normally necessary as standard emission factors and sulfur content limits for boilers yield sulfur dioxide concentrations below the standard when the units are fired with low sulfur fuel. The Control Officer may require the Permittee to quantify its sulfur dioxide emissions if the Control Officer has reasonable cause to believe a violation of a standard has been committed. [PCC 17.12.180.A.2]
5. Compliance with the fuel limitation standard referenced in Section II.A.4.a. of this part shall be determined by monitoring the monthly totals of fuel oil combusted in the boilers. [PCC 17.12.180.A.3]
6. The Permittee shall be considered in compliance with Section II.A.4.b and c of this part by making available to the Control Officer for his inspection, documentation, such as invoices or statements from the fuel supplier, showing that only low sulfur oil was purchased for use in the equipment. [PCC 17.12.180.A.3]
7. The Permittee shall be considered in compliance with Section II.A.4.d of this part by making available to the Control Officer for his inspection, documentation, such as invoices or statements from the fuel supplier, showing that only commercial natural gas was purchased for use when applicable in the boilers and at all times within the Brine Dewatering Unit. The permittee is not required to make available documentation of the fuel used in the Brine Dewatering Unit if by actual inspection of the equipment, pipeline natural gas is the only fuel supply plumbed to the equipment for firing. [PCC 17.12.180.A.3]

#### B. Emergency Generators

The provisions of this Section are applicable to equipment subject to the Pima County SIP and Title 17 of the PCC, as such in Part "D" Table 2 of this permit.

1. A demonstration to show compliance with the emission limit for particulate matter pursuant to Section II.B.1 of this part shall not be required unless the Control Officer: [PCC 17.12.180.A.2]
  - a) has reason to believe that conditions may exist which have the potential to cause a violation of the applicable requirement; or
  - b) requests a performance test to demonstrate compliance with applicable standards.

2. The Permittee shall observe the exhaust stacks of each generator at least once during each quarter for evidence of visible emissions. [PCC 17.12.180.A.3. & 4]
  3. Compliance with the visibility limiting standard referenced in Section II.B.2 of this part shall be determined by using EPA Test Method 9. [PCC 17.12.180.A.3 & PCC 17.16.040]
  4. A demonstration to show compliance with the sulfur dioxide emission standard in II.B.3 is not normally necessary as standard emission factors and sulfur content limits for generators yield sulfur dioxide concentrations below the standard when the units are fired with low sulfur fuel. The Control Officer may require the Permittee to quantify its sulfur dioxide emissions if the Control Officer has reasonable cause to believe a violation of a standard has been committed. [PCC 17.12.180.A.2]
  5. The Permittee shall be considered in compliance with Section II.B.4.a and b of this part by making available to the Control Officer for his inspection, documentation, such as invoices or statements from the fuel supplier, showing that only low sulfur oil was purchased for use in the equipment. [PCC 17.12.180.A.3]
  6. The Permittee shall monitor the following items for each diesel-fired generator showing the following: [PCC 17.12.180.A.3]
    - a. the type of fuel burned in the generator; [PCC 17.16.010.C]
    - b. the daily sulfur content and lower heating value of the fuel being fired; [PCC 17.16.340.I]
    - c. the dates that fuel was purchased or delivered, and
    - d. the basis for the determination of the sulfur content.
- Having original copies of delivery sheets on site will satisfy monitoring requirements of the above items.
7. The Permittee shall be considered in compliance with Section II.B.5 of this part by:
    - a. installing and maintaining a non-resetable engine hour meter on each generator; and
    - b. monitoring the monthly totals of the hours of operation on each emergency generator. [PCC 17.12.180.A.3]

C. General Standards

A demonstration to show compliance with the odor limiting standard in Section II.C., of this part shall not be required unless the Control Officer has reason to believe that conditions may exist which have the potential to cause a violation of the applicable requirement. [PCC 17.12.180.A.2]

#### IV. Record Keeping Requirements

##### A. Dual Fired Boilers and Natural Gas Fired Brine Dewatering Unit

1. The provision of this Section is applicable to equipment subject to the Pima County SIP and Title 17 of the PCC, as such in Part "D" Table 1 of this permit:

The permittee shall record the results of the visible emission observations required in Section III.A.2 of this part in a log containing the date of the check, the person making the check, the specific stack observed and whether visible emissions were observed. If the visible emissions were greater than the standard in Section II.A.2 of this part, the permittee shall include in the log entry any corrective action taken and report to the Control Officer according to the requirements in Section V of this part. [PCC 17.12.180.A.4]

2. The provision of this Section is applicable to boilers only subject to Pima County SIP and Title 17 of the PCC, as such in Part "D" Table 1 of this permit:

The Permittee shall maintain all required documentation to show compliance with the fuel limitation monitoring requirements in Section II.A.5 of this part. Such documentation shall include: [PCC 17.12.180.A.4]

- a. the type of fuel burned in the boilers; and, [PCC 17.16.010.C]
- b. a rolling monthly total of fuel oil combusted in the boilers for the most recent 12-consecutive month period. These shall be kept by adding the total from Section III.A.5. of this subpart to the sum of the previously recorded 11 consecutive months.

3. The Permittee shall maintain all required documentation to show compliance with the fuel monitoring requirements in Section III.A.6. and III.A.7. of this part. [PCC 17.12.180.A.4]

##### B. Emergency Generators

The provisions of this Section are applicable to equipment subject to the Pima County SIP and Title 17 of the PCC, as such in Part "D" Table 2 of this permit.

1. The Permittee shall record the results of the visible emissions observations required in Section III.B.2 of this part, in a log containing the date of the check, the person making the check, the specific stack observed, and whether visible emissions were observed. If the visible emissions observed were greater than the standard in Section II.B.2.a and Section II.B.2.b, the Permittee shall include in the log entry any corrective action taken and report to the Control Officer according to the requirements in Section V of this part. [PCC 17.12.180.A.3. & 4]

2. The Permittee shall keep monthly totals of the engine-hours of operation for each generator. The totals for each month shall be recorded within five working days after the end of the month. [PCC 17.12.180.A.4]

3. The Permittee shall maintain all required documentation to show compliance with the fuel monitoring requirements in Section III.B.5. and III.B.6. of this part. [PCC 17.12.180.A.4]

4. The Permittee shall keep rolling monthly totals of the engine-hours of operation for each generator for the most recent 12-consecutive month period. These shall be kept by adding the totals from Section III.B.7.b. of this subpart to the sum of the previously recorded 11 consecutive months. [PCC 17.12.180.A.4]

C. General Standards

1. Permittee shall retain all records relating to this permit, and a copy of the permit at the permit site. The Permittee shall comply with the permit posting requirements of Part "A", Section IV. All records shall be maintained in accordance with the requirements of Section XII. of Part "A".  
[PCC 17.12.080 & PCC 17.12.180.A.4]
2. All records shall be retained for at least five years. [PCC 17.12.180.A.4]

V. Reporting Requirements

- A. Dual Fired Boilers and Natural Gas Fired Brine Dewatering Unit (see source general standards requirements in Section V.C. of this part).

- B. Emergency Generators

The Permittee shall report any daily period during which the sulfur content of the fuel being fired is greater than 0.8 percent.  
[PCC 17.16.340.J & PCC 17.12.180.A.5]

- C. General Standards

1. Excess Emissions and Permit Deviation Reporting

The Permittee shall report to the Control Officer any emissions in excess of the limits established by this Part within 24 hours of the time the Permittee first learned of the excess emissions occurrence. The Permittee shall report other deviations from permit requirements in this Part within two working days of the time the deviation occurred. (See Part "A", Section XI for detailed information on these two reports).  
[PCC 17.12.180.A.5.b. & PCC 17.12.180.E.3.d]

2. Semiannual Summary Reports of Required Monitoring

The Permittee is not required to submit semiannual reports of required monitoring unless excess emissions or permit deviations have occurred during the reporting period. Summary reports, if required, shall be due on January 31st (covering the period July 1st through December 31st) and July 31st (covering the period January 1st through June 30th) of each year. The first summary report due after permit issuance may not cover a six-month period. All instances of excess emissions and deviations from permit requirements shall be clearly identified in such reports.  
[PCC 17.12.180.A.5.a]

3. Compliance Certification Reporting

The Permittee shall submit an annual compliance certification to the Control Officer. The Compliance Certification Report is due on January 31st of each year. The first report due after permit issuance may not cover a 12-month period. (See Part "A", Section VII for detailed information on this report).  
[PCC 17.12.220.A.2]

4. Emissions Inventory Reporting

Every source subject to a permit requirement shall complete and submit an annual emissions inventory questionnaire when requested by the Control Officer. (See Part "A", Section VI for additional information on this report).  
[PCC 17.12.320]

## VI. Testing Requirements

- A. Mass emission testing to determine compliance with the particulate matter standard in Section II.A.1. and Section II.B.1 of this part is not normally necessary as standard emission factors for boilers and generators yield emission estimates of particulate matter that are far less than the standard allowed by the referenced equation. The Control Officer may require the Permittee to quantify its particulate matter emissions if the Control Officer has reasonable cause to believe a violation of a standard has been committed. [PCC 17.20.010]
- B. EPA Test Method 5 shall be used to monitor compliance with II.A.1 and II.B.1 of this part when required or requested by the Control Officer. [PCC 17.12.180.A.3 & PCC 17.16.165.K.1.c]
- C. EPA Test Method 9 may be used to monitor compliance with the opacity standard in Section II.A.2 and Section II.B.2 of this part when required or requested by the Control Officer. [PCC 17.12.045]
- D. Testing to determine compliance with the sulfur dioxide emission standard in II.A.3 and II.B.3 of this part is not normally necessary as standard emission factors for generators yield sulfur dioxide concentrations well below the standard when the units are fired with low sulfur fuel. The Control Officer may require the Permittee to quantify its sulfur dioxide matter emissions if the Control Officer has reasonable cause to believe a violation of a standard has been committed. [PCC 17.20.010]
- E. EPA Test Method 6 shall be used to monitor compliance with II.A.3 of this part when required or requested by the Control Officer. [PCC 17.12.180.A.3 & PCC 17.16.165.K.1.d]
- F. The Permittee shall determine compliance with the sulfur content standard in Section II.B.3 and II.B.4 of this part as follows: Reference Method ASTM D-129-91 shall be used to determine the sulfur content of liquid fuels. [PCC 17.16.340.K]
- G. The permittee may submit an alternative and equivalent test method(s) that is listed in 40 CFR Subpart 60, Appendix A, to the Control Officer in a test plan, for approval by the Control Officer. [PCC 17.12.045.D]

**PERMIT ISSUED TO: IBM CORP AS MANAGING OPERATOR FOR  
CAMPUS RESEARCH CORPORATION:  
The Project At The University of Arizona Science and Technology Park**

**PERMIT NUMBER 260**

**Part "C": APPLICABLE REGULATIONS**

**REQUIREMENTS SPECIFICALLY IDENTIFIED AS APPLICABLE**

Compliance with the terms contained in this permit shall be deemed compliance with the following federally applicable requirements in effect on the date of permit issuance:

Pima County SIP:

Rule 321	Emissions-Discharge: Opacity Limiting Standards and Applicability
Rule 343	Visibility Limiting Standard
Rule 344.A	Odor Limiting Standard

Compliance with the terms contained in this permit shall be deemed compliance with the following non-federally applicable requirements in effect on the date of permit issuance:

Pima County Code (PCC) Title 17, Chapters:

17.12.045	Test methods and procedures
17.12.080	Permit display or posting
17.12.180	Permit contents
17.12.190	Permits containing voluntarily accepted emission limitations and standards
17.12.220	Compliance plan; certification
17.12.320	Annual emissions inventory questionnaire
17.12.350	Material permit condition
17.16.010	Local rules and standards
17.16.030	Odor Limiting Standards
17.16.040	Standards and applicability (Includes NESHAP)
17.16.050	Visibility limiting standard
17.16.130	New and Existing Stationary Source Performance Standards
17.16.165	Standards of performance for fossil-fuel fired industrial and commercial equipment
17.16.340	Standards of Performance for Stationary Rotating Machinery
17.20.010	Source Sampling, Monitoring, and Testing

**PERMIT ISSUED TO: IBM CORP AS MANAGING OPERATOR FOR CAMPUS RESEARCH CORPORATION:  
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**Part "D": EQUIPMENT LIST**

**TABLE 1**

<b>Equipment Location (Building)</b>	<b>Description</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Date of Manufacture</b>	<b>Capacity (Btu/hr)</b>	<b>Serial Number</b>	<b>Fuel</b>
9012	Steam Boiler	Cleaver Brooks	D-52	~ 1979	4,365,000	WL-2859	Diesel or Natural Gas Fired
9012	Steam Boiler	Cleaver Brooks	D-52	~ 1979	4,365,000	WL-2860	Diesel or Natural Gas Fired
9018C	Brine Dewatering	(Custom Assembly)	Niro Atomizer	1988	4,800,000	(none)	Natural Gas

**TABLE 2**

<b>Equipment Location (Building)</b>	<b>Description</b>	<b>Manufacturer</b>	<b>Date of manufacture</b>	<b>Capacity (hp)</b>	<b>Serial Number</b>	<b>Fuel</b>
9012	Emergency Generator	Onan	~ 1979	85	A790389472	Diesel
9012	Emergency Generator	Onan	~ 1979	191	8860799369	Diesel
9014	Fire Pump	Unknown	~ 1979	380	402869	Diesel
9018	Emergency Generator	Chalmers	~ 1979	305	47BH4295	Diesel
9018D	Emergency Generator	Chalmers	~ 1979	162	A790386151	Diesel
Provision allowed for two additional generators	Emergency Generators	N/A	N/A	Equal or less than 1200 each	N/A	Diesel