



**Air Quality Permitting
Statement of Basis**

June 06, 2007

Permit to Construct No. P-2007.0053

**Hewlett-Packard
Boise, Idaho Main Site**

Facility ID No. 001-00086

Prepared by:

MP **Marcia Porter, Permit Writer
Air Quality Division**

Final

Table of Contents

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURES	3
1. PURPOSE	4
2. FACILITY DESCRIPTION	4
3. FACILITY / AREA CLASSIFICATION.....	4
4. APPLICATION SCOPE	4
5. PERMIT ANALYSIS.....	5
6. PERMIT FEES	10
7. PERMIT REVIEW	10
8. RECOMMENDATION.....	10
APPENDIX A: AIRS DATA	
APPENDIX B: EMISSIONS INVENTORY	
APPENDIX C: SATISFACTORY MODELING COMPLIANCE LETTER	
APPENDIX D: FACILITY PLOT PLAN	

Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
B	Air Quality facility emissions classification for a natural minor source in Idaho DEQ
bldg	building
BRO	Boise Regional Office
Btu	British thermal unit
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
EL	Emissions screening level
FR	Federal Regulations
HAPs	Hazardous Air Pollutants
HCl	Hydrochloric acid
HP	Hewlett Packard
hp	horsepower
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
kW	Kilowatt hours
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
O ₃	ozone
O & M	Operation and Maintenance
Pb	lead
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SIP	State Implementation Plan
SO ₂	sulfur dioxide
TAPs	Toxic air pollutants
T/yr	tons per year
µg/m ³	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

Hewlett Packard manufacturers of computer peripherals and R & D development.

There are eight boilers that are used exclusively for space heating and hot water supply at the facility, nine emergency power back up generators available at the facility in the event of utility power failures, two fire pumps for property protection in the event of localized fires, thirteen diesel storage tanks, and chemical VOC emissions and HCl vapor emissions.

3. FACILITY / AREA CLASSIFICATION

Hewlett-Packard is classified as a true minor facility because Hewlett Packard's potential to emit is less than major source thresholds without requiring limits on its potential to emit. The AIRS classification is "B."

The facility is located within AQCR 64 and UTM zone 11. The facility is located in Ada County which is designated as in attainment for PM₁₀ and CO; and unclassified for the remaining criteria pollutants (NO_x, SO₂, lead, and ozone).

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at Hewlett Packard. This required information is entered into the EPA AIRs database.

4. APPLICATION SCOPE

This is a Permit to Construct (PTC) for an existing facility that was operating under a Tier II operating permit. The Tier II permit has been withdrawn and will be replaced with this PTC.

4.1 *Application Chronology*

March 14, 2007	DEQ received a Tier II withdrawal letter from HP.
April 9, 2007	DEQ received a PTC application and \$1,000.00 application fee from HP.
April 10, 2007	DEQ received application addendums for all of the facility boilers showing the boiler serial numbers and burner types.
April 12, 2007	DEQ sends letter to HP formally withdrawing their Tier II operating permit.
April 17, 2007	DEQ determines the application is complete and e-transmits a completion letter to HP.
April 25, 2007	DEQ receives supplemental information from HP on generators, fire pumps, a site map, and chemical usage.
April 27, 2007	Facility drafts of HP PTC is e-transmitted to the facility and Boise Regional Office for review and comment.
May 9, 2007 to May 23, 2007	DEQ provides an opportunity for public comment period.
May 25, 2007	DEQ receives processing fees from facility.
June 06, 2007	Final Permit and Statement of Basis is issued.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.:

5.1 Equipment Listing

Table 5.1 lists all sources of regulated emissions in this PTC.

Table 5.1 Regulated equipment associated with this permit.

Permit Section	Source Description	Emissions Control(s)
3	Chemical processing facility	uncontrolled
3	HCl	uncontrolled
4	<p><u>Boilers:</u> All are Natural Gas fired; with no other fuel as backup:</p> <p><u>Boiler No. B5-1:</u> Manufacturer: Cleaver Brooks Model No.: CB-200-150 Manufacturer Serial No.: L-66428 Rated capacity: 6.28 MMbtu Burner type: Cleaver Brooks</p> <p><u>Boiler No. B5-2:</u> Manufacturer: Cleaver Brooks Model No.: CB-200-300 Manufacturer Serial No.: L-66429 Rated capacity: 12.55 MMbtu Burner type: Cleaver Brooks</p> <p><u>Boiler No. B6-1:</u> Manufacturer: Sellers Model No.: SY-150-YGNIS Manufacturer Serial No.: 97412-R Rated capacity: 6.28 MMbtu Burner type: PeabodyGordon-Piatt</p> <p><u>Boiler No. B6-2:</u> Manufacturer: Sellers Model No.: SY-350-YGNIS Manufacturer Serial No.: 97413-R Rated capacity: 14.65 MMbtu Burner type: PeabodyGordon-Piatt</p> <p><u>Boiler No. B6-3:</u> Manufacturer: Cleaver Brooks Model No.: CB700 Manufacturer Serial No.: OL101209 Rated capacity: 14.64 MMbtu Burner type: Cleaver Brooks</p> <p><u>Boiler No. SB6-1:</u> Manufacturer: Cleaver Brooks Model No.: CB700-30 Manufacturer Serial No.: L-101200 Rated capacity: 1.26 MMbtu Burner type: Cleaver Brooks</p>	<p><u>All Boilers:</u> uncontrolled</p>

4	<p><u>Boiler No. SB6-2:</u> Manufacturer: Cleaver Brooks Model No.: CB700-30 Manufacturer Serial No.: L-101199 Rated capacity: 1.26 MMBtu Burner type: Cleaver Brooks</p> <p><u>Boiler No. SB6-3:</u> Manufacturer: Cleaver Brooks Model No.: CB700-30 Manufacturer Serial No.: L-101201 Rated capacity: 1.26 MMBtu Burner type: Cleaver Brooks</p>	<u>All Boilers:</u> uncontrolled
5	<p><u>Emergency Generators:</u> All are No. 2 Diesel Fuel Fired with no other back-up fuel:</p> <p>Generator No.: EG-1 Manufacturer: Onan Model No.: 125DGEA Manufacturer Serial No.: 45342908 Rated Power: 110 kW</p> <p>Generator No.: EG2-1 Manufacturer: Onan Model No.: 300DFML27619N Manufacturer Serial No.: 80816225 Rated Power: 300 kW</p> <p>Generator No.: EG2-2 Manufacturer: Onan Model No.: DFJC900 Manufacturer Serial No.: 44811422 Rated Power: 175 kW</p> <p>Generator No.: EG-3 Manufacturer: Onan Model No.: DFED Manufacturer Serial No.: 37185228 Rated Power: 500 kW</p> <p>Generator No.: EG-4 Manufacturer: Onan Model No.: 125DGEA Manufacturer Serial No.: 45404420 Rated Power: 125 kW</p> <p>Generator No.: EG-5 Manufacturer: Cummins Model No.: DFAC 4479274 Manufacturer Serial No.: 35000005 Rated Power: 230 kW</p> <p>Generator No.: EG6-1</p>	<u>All Emergency Generators:</u> uncontrolled

5	<p>Manufacturer: Caterpillar Model No.: 3406 Manufacturer Serial No.: 4ZR02378 Rated Power: 400 kW</p> <p>Generator No.: EG6-2 Manufacturer: Onan Model No.: DFED 4490038 Manufacturer Serial No.: 37195775 Rated Power: 500 kW</p> <p>Generator No.: EG7 Manufacturer: Onan Model No.: 125DEGA Manufacturer Serial No.: 45346163 Rated Power: 125 kW</p>	<u>All Emergency Generators:</u> uncontrolled
5	(13) Diesel fuel tanks	uncontrolled
5	<p>Fire Pump Building 1 Detroit Diesel Allison Model No. 10447110 Serial No. 4A0212189 4 inch diameter stack 15 foot stack height</p> <p>Fire Pump Building 7 Clark Diesel GM Model No. DDF004AN Serial No. 4A-265573 4 inch diameter stack 10 foot stack height</p>	uncontrolled

5.2 Emissions Inventory

Summary of the emissions inventories is included in the two tables below. The detailed emissions inventory is included as Appendix B.

Table 5.1 HEWLETT PACKARD BOILER EMISSIONS INVENTORY SUMMARY

Source Description	PM		PM ₁₀		SO ₂		NO _x		VOC		CO	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
All Boilers at Facility	0.433	1.90	0.433	1.90	0.034	0.15	5.704	24.98	0.314	1.37	4.791	20.99

Table 5.2 HEWLETT PACKARD BOILER HAP EMISSIONS INVENTORY SUMMARY

Source Description	HAP		
	lb/hr	EL	T/yr
All Boilers at Facility	1.48 E-01	9.10E-05	1.13

5.3 Modeling

5.3.1 HP submitted complete and entire modeling for their facility in 2003. At that time the modeling protocol was accepted and approved by DEQ. Since the time of the approval H-P has decreased their overall facility emissions due to removal of some equipment.

5.3.2 Due to conditions 5.3.1 for HP, facility emissions have decreased considerably. Since this has been demonstrated to the satisfaction of DEQ; it is DEQ's determination that no further modeling would be required. A letter from DEQ's modeling coordinator Kevin Schilling is included as Appendix C.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 Permit to Construct Required

Emissions units at this facility were constructed without first obtaining a Permit to Construct. This PTC covers these emissions units.

IDAPA 58.01.01.203 Permit Requirements for New and Modified Stationary Sources

This requirement applies to all new or modified stationary sources. The applicant has shown to the satisfaction of DEQ that the facility will comply with all applicable emissions standards, ambient air quality standards, and toxic increments.

IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

This requirement applies to all new or modified stationary sources. The applicant has demonstrated preconstruction compliance for all TAPs identified in the permit application by demonstrating that the estimated TAPs emissions are below applicable EL values in IDAPA 58.01.01.585 and 586.

IDAPA 58.01.01.224 Permit to Construct Application Fee

This requirement applies to applicants submitting a PTC application. The applicant satisfied the PTC application fee requirement by submitting a fee of \$1,000.00 at the time the original application was submitted, April 10, 2007.

IDAPA 58.01.01.225 Permit to Construct Processing Fee

The total emissions from the facility changes are less than 1 T/year; there was minimal engineering analysis done, therefore, the associated processing fee is \$250.00. No permit to construct can be issued without first paying the required processing fee. The applicant satisfied this requirement by submitting the processing fee on May 25, 2007.

40 CFR 60, Subpart Dc National Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

40 CFR 60c Applicability and delegation of authority

In accordance with 40 CFR 60.40c(a), the affected facility to which this subpart applies is the B6-3 boiler because it is a steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu per hour (Btu/hr)), or less, but greater than or equal to 2.9 MW (10 million Btu/hr). Specifically, the B6-3 boiler is a steam generating unit rated at 14.64 MMBtu per hour, that was installed after June 9, 1989.

40 CFR 60.40c(b) does not apply to this facility because it is defining delegated authority;

40 CFR 60.40c(c) and (d) does not apply to this facility because boiler B6-3 is not operated to conduct combustion research;

40 CFR 60.40(e), boiler B6-3 is not combined with a cycle gas turbine and does not meet the applicability of subpart KKKK, therefore subpart Dc applies;

40 CFR 60.40(f), boiler B6-3 is not a small municipal waste combustion unit covered with subpart AAAA, therefore subpart Dc applies;

40 CFR 60.40(g), boiler B6-3 is not a small municipal waste combustion unit and is not covered by subpart BBBB, therefore subpart Dc applies;

40 CFR 60.41c definitions, applies to this facility because subpart Dc applies to this facility;

40 CFR 60.42c does not apply to this facility because the facility does not combust coal;

40 CFR 60.43c does not apply to this facility because the facility does not combust coal with other fuel sources;

40 CFR 60.44c(a) and (b) applies to this facility because of the need to meet compliance and performance test methods and procedures for sulfur dioxide of subpart Dc;

40 CFR 60.44c(b through j) do not apply to this facility because the facility does not burn coal and oil;

40 CFR 60.45c(a-c) do not apply to this facility because 40 CFR 60.43c does not apply to this facility;

40 CFR 60.45c(d) applies to this facility as the facility may choose to monitor PM emissions with a continuous emissions monitoring system (CEMS);

40 CFR 60.46c does not apply to this facility because the facility is not subject to SO₂ emission limits of 40 CFR 60.42c;

40 CFR 60.47c does not apply to this facility because the facility does not burn coal, oil, gas, or wood that is subject to COMS for measuring opacity;

40 CFR 60.48c(a), (f), (g), (j), (i) apply to this facility because of the need to meet reporting and recordkeeping requirements of subpart Dc;

40 CFR 60.45c(b-e), do not apply to this facility because either or both 40 CFR 60.42c or 60.43c do not apply to this facility and this section applies only if 40 CFR 60.42c or 60.43c apply to the facility;

40 CFR 60.48c(h), does not apply to this facility because 40 CFR 60.42c or 60.43c do not apply to this facility and part (h) applies only if 40 CFR 60.42c or 60.43c apply to the facility.

5.5 Permit Conditions Review

This section describes only those permit conditions that have been added as a result of this permit action, and that may not be self-explanatory.

Facility Wide-Controls:

Permit conditions 2.1-2.4: Limits and provides conditions for control, monitoring, or recording of particulate matter emissions, fugitive dust control, fugitive dust complaint handling, and Air Pollution Emergency Rule inclusion.

Permit condition 2.5: Limits the grain standard for boiler fuel. Establishes limits on diesel sulfur content.

Permit Conditions 2.6 and 2.7: Provides for limits on visible emissions and excess emissions limits.

Chemical Processing

Permit conditions 3.1 through 3.5: Establishes limits and provisions for the monitoring and controlling of non-point source VOC and HCl vapor emissions from the manufacturing building.

Boiler Controls:

Permit condition 4.3: Establishes applicability, rules, and submission requirements for boilers subjective to NSPS requirements.

Permit condition 4.5: Limits fuel type for boilers to natural gas exclusively.

Emergency Generator Controls:

Permit conditions 5.7 and 5.8: Establishes the guidance and minimum requirements for monitoring and recordkeeping for the generators and the fire pumps.

6. PERMIT FEES

Permit to Construct application and processing fees apply to the facility in accordance with IDAPA 58.01.01.224 and 225. The permit to construct application fee is \$1,000 and DEQ received this on April 09, 2007. A PTC processing fee of \$250 is required to be paid before a final Permit to Construct can be issued. Table 6.1 summarizes the emissions inventory and the PTC processing fees. Since there was a facility wide reduction in emissions from the initial Tier II; the minimum PTC fees are being applied. DEQ received the processing fee on May 25, 2007.

Table 6.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO _x	6.29	0	6.29
SO ₂	0.04	0	0.04
CO	5.28	0	5.28
PM ₁₀	0.48	0	0.48
VOC	0.35	0	0.35
TAPS/HAPS	0.0014	0	0.0014
Total:	0.0	0	0.0
Fee Due	\$ 250.00		

7. PERMIT REVIEW

7.1 *Regional Review of Draft Permit*

On April 27, 2007 the Boise Regional Office received a facility draft of the permit and statement of basis for their review. Comments from Boise Regional Office were not received.

7.2 *Facility Review of Draft Permit*

On April 27, 2007 the facility received a facility draft of the permit and statement of basis for their review. No comments were received from the facility.

Public Comment

DEQ provided an opportunity for public comment period from May 18, 2007 through June 01, 2007. There were no requests for a public comment review.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that Hewlett Packard be issued a draft PTC No. P-2007.0053 for the Boise Main Site Hewlett Packard facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

Appendix A
AIRS Information
P-2007.0053

AIRS/AFS^a FACILITY-WIDE CLASSIFICATION^b DATA ENTRY FORM

Facility Name: Hewlett Packard
Facility Location: Boise Main Site
AIRS Number: 001-00086

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO ₂	B							U
NO _x	B							U
CO	B							A
PM ₁₀	B		B					A
PT (Particulate)	--							
VOC	B							U
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					
			Dc					

^a Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

^b AIRS/AFS Classification Codes:

- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B
Emissions Inventory
P-2007.0053

Permitting worksheet for a Natural Gas Fired Boiler

Emissions Unit:
Purpose:

A natural gas (NG) fired boiler
To calculate emissions for criteria air pollutants, hazardous air pollutants (HAPs), and toxic air pollutants (TAPs) from natural gas fired boiler, to determine the NSPS applicability (except for Da), to determine the compliance status for grain loading standard, to generate corresponding permit conditions for this boiler

Source Information^a

Facility:	Hewlett Packard (facility wide)
Permit No.:	PTC P-2007.0053
Facility ID No.:	001-00086
Emissions Unit:	All boilers

Rated Heat Input Rate^b:	58.2 MMBtu/hr
Commenced construction modification, or reconstruction date in M/D/Y ^c :	xxxxxx
Annual fuel consumption of this boiler (Input a value or leave it as its default value.)^d	500 10 ⁶ scf (heat input rate MMBtu/hr / heating value 102C)

Type of boiler (input Y/N to each question)^e	"Y/N"?
Is the boiler a large wall-fired boiler? (default)	y

Type of NO_x control (input Y/N to each question)^f	"Y/N"?
Is this boiler NO _x controlled?	n n

NSPS Applicability^g
D does not apply
Db does not apply
The boiler is subject to Dc

Criteria Air Pollutants^h

	Emissions Factors (EFs)		Emissions	
	lb/10 ⁶ scf	lb/MMBtu	lb/hr	T/yr
PM	7.6	0.0075	0.433	1.90
PM ₁₀	7.6	0.0075	0.433	1.90
NO _x ⁱ	100	0.0980	5.704	24.98
CO ^j	84	0.0824	4.791	20.99
SO ₂	0.6	0.0006	0.034	0.15
VOC	5.5	0.0054	0.314	1.37
Lead (Pb)	0.0005	0.0000	0.000	1.25E-04

TAPs^j

Cas No.	TAPS	Emissions Factors (EFs) ^k		Emissions lb/hr	TAP EL ³ lb/hr	Are emissions below EL? ³
		lb/10 ⁶ scf	lb/MMBtu			
71-43-2	Benzene (HAP)	2.1 E-03	2.06 E-06	1.20E-04	8.00E-04	below
50-32-8	Benzo(a)pyrene ²	1.2 E-06	1.18 E-09	6.84E-08	2.00E-06	below
50-00-0	Formaldehyde (HAP)	7.5 E-02	7.35 E-05	4.28E-03	5.10E-04	Exceed
110-54-3	Hexane (HAP)	1.8 E+00	1.76 E-03	1.03E-01	1.20E+01	below
91-20-3	Naphthalene (HAP)	6.1 E-04	5.98 E-07	3.48E-05	3.33E+00	below
109-66-0	Pentane	2.6 E+00	2.55 E-03	1.48E-01	1.18E+02	below
108-88-3	Toluene (HAP)	3.4 E-03	3.33 E-06	1.94E-04	2.50E+01	below
7440-38-2	Arsenic (HAP)	2.0 E-04	1.96 E-07	1.14E-05	1.50E-06	Exceed
7440-39-3	Barium	4.4 E-03	4.31 E-06	2.51E-04	3.30E-02	below
7440-41-7	Beryllium (HAP) ²	1.2 E-05	1.18 E-08	6.84E-07	2.80E-05	below
7440-43-9	Cadmium (HAP)	1.1 E-03	1.08 E-06	6.27E-05	3.70E-06	Exceed
7440-47-3	Chromium (HAP)	1.4 E-03	1.37 E-06	7.99E-05	3.30E-02	below
7440-48-4	Cobalt (HAP)	8.4 E-05	8.24 E-08	4.79E-06	3.30E-03	below
7440-50-8	Copper	8.5 E-04	8.33 E-07	4.85E-05	1.30E-02	below
7439-96-5	Manganese (HAP)	3.8 E-04	3.73 E-07	2.17E-05	3.33E-01	below
7439-97-6	Mercury (HAP)	2.6 E-04	2.55 E-07	1.48E-05	7.00E-03	below
7439-98-7	Molybdenum	1.1 E-03	1.08 E-06	6.27E-05	6.67E-01	below
7440-02-0	Nickel (HAP)	2.1 E-03	2.06 E-06	1.20E-04	2.70E-05	Exceed
7782-49-2	Selenium (HAP) ²	2.4 E-05	2.35 E-08	1.37E-06	1.30E-02	below
7440-62-2	Vanadium ⁴	2.3 E-03	2.25 E-06	2.35E-04	3.00E-03	below
7440-66-6	Zinc	2.9 E-02	2.84 E-05	1.65E-03	6.67E-01	below
NA (PAH)	Benzo(a)anthracene (HAP) <	1.80E-06	1.76 E-09			
	Benzo(b)fluoranthene (HAP)<	1.80E-06	1.76 E-09			
	Benzo(k)fluoranthene(HAP)<	1.80E-06	1.76 E-09			
	Benzo(a)pyrene ²	1.2 E-06	1.18 E-09			
	Chrysene (HAP) <	1.80E-06	1.76 E-09			
	Dibenz(a,h)anthracene (HAP)<	1.20E-06	1.18 E-09			
	Indeno(1,2,3-cd)pyrene(HAP)<	1.80E-06	1.76 E-09			
Total PAH		1.14E-05	1.12E-08	6.50E-07	9.10E-05	below

Permitting worksheet for a Natural Gas Fired Boiler

¹ Compilation of Air Pollutant Emission Factors, AP-42 Section 1.4 Natural Gas Combustion (Rev. 3/98)

² EF in AP-42 is listed as less than (<) the value listed in "Emissions Factors" column.

³ EL taken from IDAPA 58.01.01.585 or 586.

⁴ In IDAPA 58.01.01.585, the EL and AAC is for V (74440-62-2) expressed as V2O5 (1314-62-1). This Vanadium emissions rate is converted to V2O5 by: AP-42 emissions factor (lb/MMBtu) x heat input rate (MMBtu/hr) of V x (1 lbmol of V2O5 / 2 lbmol of V) x (181.88 lb V2O5 / lbmol of V2O5) / (50.94 lb V / lbmol of V) = lb/hr of V2O5. The calculated V2O5 rate is compared to EL taken from IDAPA 58.01.0.585.

HAPs^k

Total HAP	0.47 T/yr
------------------	-----------

TAPs total:^l	1.13 T/yr
--------------------------------	-----------

Grain loading standard^m

The boiler meets grain loading standard per the calculation result from the Grain Loading Calc NG spreadsheet

Permit Conditionsⁿ

NSPS permit conditions:

- a. Notification per §60.7 of 40 CFR 60.
 - b. Record and maintain natural gas usage
- The following row is intended to be blank.

AP-42 Table 1.4-1 (boiler part)

	NO ₂ (lb/10 ⁶ scf)	CO (lb/10 ⁶ scf)
Large Wall-Fired Boilers (>=100 MMBtu/hr)¹		
Uncontrolled (pre-NSPS) ²	280	84
Uncontrolled (post-NSPS)	190	84
Controlled - low NOx burners	140	84
Controlled - Flue gas recirculation	100	84
Small Boilers (< 100 MMBtu/hr)		
Uncontrolled	100	84
Controlled - low NOx burners	50	84
Controlled - low NOx burners and flue gas recirculation	32	84
Tangential-fired boilers (all sizes)		
Uncontrolled	170	24
Controlled - flue gas recirculation	76	98

¹ In AP-42, For wall-fired boilers, EF is either for a boiler with rated heat input greater than 100 MMBtu/hr or less than 100 MMBtu/hr. No EF for the boiler with rated heat input rate of 100 MMBtu/hr. I assumed that EF for a boiler with rated heat input rate greater than 100 MMBtu/hr is the same as EF for a boiler with rated heat input of 100 MMBtu/hr.

² NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984

Average gross heating value of natural gas from AP-42, Section 1.4 (rev 7/98):

1020 MMBtu/10⁶ scf NG

40 CFR 60 applicability thresholds	MMBtu/hr	triggered date
D	>250	8/17/1971
Db	>100	6/19/1984
Dc	10-100	6/9/1989

^a Input facility name, permit number, and facility ID number or AIRS number

^b Input boiler's rated heat input rate in MMBtu/hr

^c Input boiler's commenced construction modification, or reconstruction date in M/D/Y.

The definitions from NSPS are "Commenced" means, with respect to the definition of new source in section 111(a)(2) of the Act, that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.; "Construction" means fabrication, erection, or installation of an affected facility.; "Modification" means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.; and "Reconstruction" means the replacement of components of an existing facility to such an extent that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and (2) It is technology

^d The default calculated annual consumption (10⁶ scf/yr) = rated heat input rate (MMBtu/hr) / gross natural gas heating values (MMBtu/10⁶ scf) x 8760 hr/yr. or, you can input annual natural gas consumption in 10⁶ scf here.

^e Input boiler type. Wall-fired is set as default. Unless input "y" to tangential fired boiler, NOx EF for wall-fired boiler will be automatically picked. Wall-fired boilers employ individual burners, resulting in the combustion of fuel in the immediate vicinity of the wall. Burners are located in either one side (front fired) or both sides of the boiler (opposed fired). Tangential-fired boilers are characterized by fuel and air introduction from the corners of the furnace, directed toward the tangent of an imaginary circle in the center of the boiler. This type of fuel firing system is generally believed to allow the overall furnace to act as a single burner, with the fuel and air compartments serving as injection ports. The slower mixing of fuel and air common in these boilers results in lower NOx emissions than wall-fired equipment. (source: <http://www.epa.gov/ttn/naaqsozone/ro/otag/finalrpl/chp5/appa.htm>)

^f Input information on NO_x control

^g The cells are programmed so that they automatically make applicability determination (except for Subpart Da) based on input information of heat input rate and commenced construction modification, or reconstruction date.

^h hourly emissions rate (lb/hr) = rated heat input rate (MMBtu/hr) x EF (lb/MMBtu); annual emissions rate (T/yr) = annual natural gas consumption (10⁶ scf/yr) x EF (lb/10⁶ scf) / (2000 lb/T). EFs in lb/10⁶ scf are taken from AP-42, Section 1.4 (7/98). EFs in lb/MMBtu are converted from EFs in lb/10⁶ scf by dividing EFs in lb/10⁶ scf with gross natural gas heating values in MMBtu/10⁶ scf.

ⁱ The cells for NOx and CO EFs are programmed so that they will pick up the right EFs based on input information of rated heat input rate, commenced construction modification, or reconstruction date, NOx control and control type, and type of boiler.

^j TAPs (lb/hr) = EF (lb/MMBtu) x rated heat input rate (MMBtu/hr). EFs in lb/10⁶ scf are taken from AP-42, Section 1.4 (7/98). EFs in lb/MMBtu are converted from EFs in lb/10⁶ scf by dividing EFs in lb/10⁶ scf with gross natural gas heating values in MMBtu/10⁶ scf.

^k Total TAPs (T/yr) = total HAPs (lb/hr) x annual natural gas consumption (10⁶ scf/yr) x gross natural gas heating value (MMBtu/10⁶ scf) / rated heat input rate (MMBtu/hr) / (2000 lb/T).

^l TAPs total (T/yr) = total TAPs (lb/hr) x annual natural gas consumption (10⁶ scf/yr) x gross natural gas heating value (MMBtu/10⁶ scf) / rated heat input rate (MMBtu/hr) / (2000 lb/T).

^m Details see the linked "grain loading calc NG" spreadsheet

ⁿ Cells for permit conditions are programmed so that the permit conditions will appear or disappear based on the input information of rated heat input rate and commenced construction modification, or reconstruction date, and annual natural gas combustion. If annual natural gas combustion is less than the product of rated heat input rate multiplying 8760 hr/yr, a permit condition of natural gas throughput limit will appear.

Appendix C

Modeling Review

P-2007.0053

MEMORANDUM

DATE: May 30, 2007

TO: Marcia Porter, Permit Writer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT NUMBER: P- 2007.0053

SUBJECT: Modeling Review for the Hewlett-Packard Facility-Wide Permit to Construct for their Complex in Boise, Idaho

All criteria pollutant emissions sources at the facility consist of natural gas-fired boilers and diesel-fired emergency generators. Combined maximum allowable emissions from the boilers are below recently proposed DEQ modeling thresholds for all pollutants except NO_x, where total boiler emissions are 25 ton/yr. The proposed conditional modeling thresholds are based on all emissions occurring from a single hypothetical stack and maximum modeled impacts equal to the significant contribution levels. The thresholds are as follows:

- PM10 - 0.9 lb/hr and 7 ton/yr
- SO₂ - 0.9 lb/hr and 7 ton/yr
- CO - 70 lb/hr
- NO_x - 7 ton/yr

The emergency generators will only be operated during testing and periods of electrical outages.

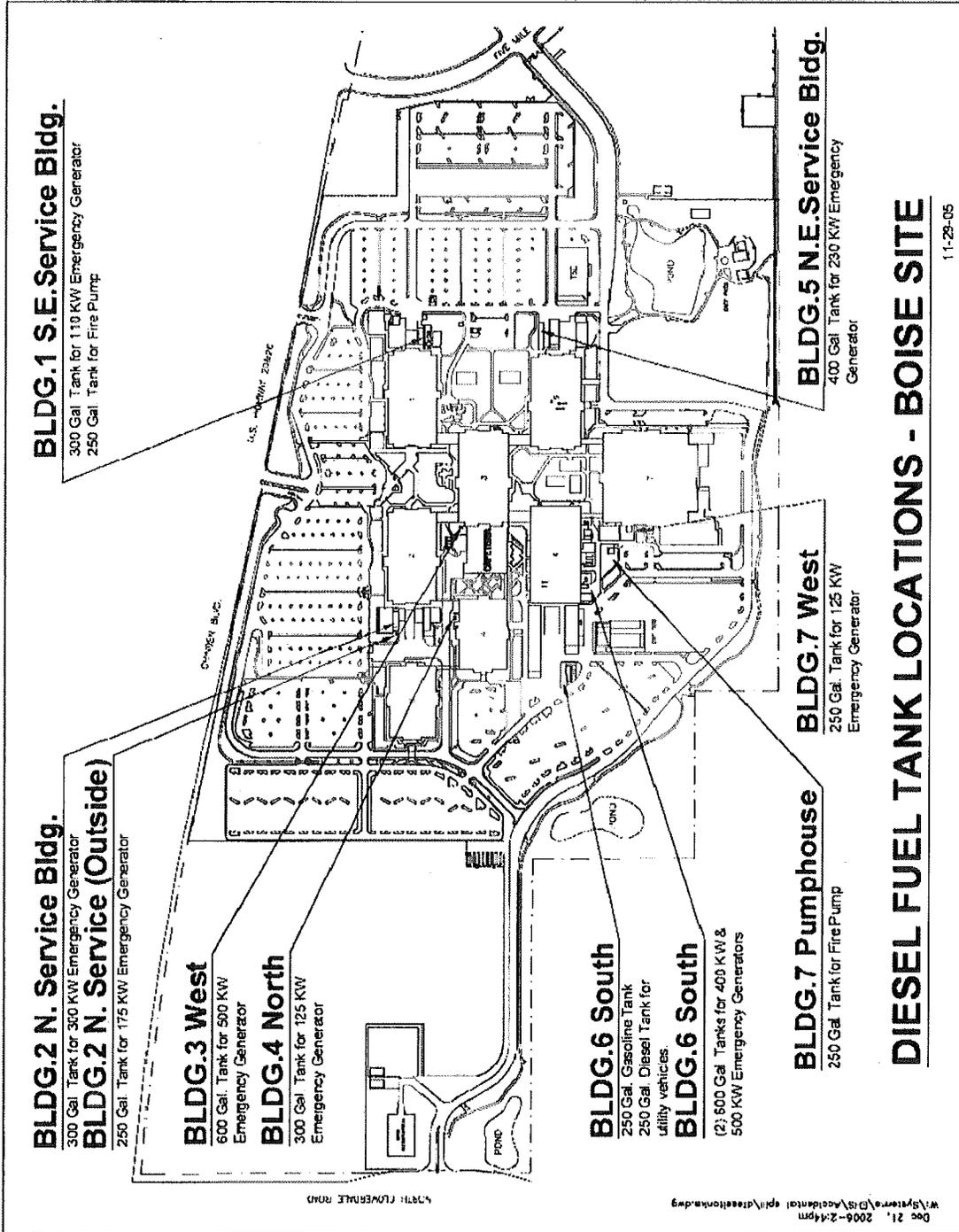
Site-specific dispersion modeling analyses for the Hewlett-Packard (HP) facility were conducted by HDR Engineering, Inc., HP's consultant. The analyses were submitted to DEQ with the permit application, dated August 1, 2003. Modeling results indicated compliance with all applicable ambient air quality standards.

DEQ air quality modeling staff is accepting the submitted modeling analyses as "true, accurate, and complete," without additional agency review and/or verification analyses. This decision is based on the professional judgment of DEQ dispersion modeling staff, considering the nature of the emissions sources, the magnitude of the emissions, and the results from the submitted modeling analyses. Therefore, the ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.

Appendix D

Plot Plan for Hewlett Packard

P-2007.0053



DIESEL FUEL TANK LOCATIONS - BOISE SITE

11-29-05