

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1936-AOP-R5 AFIN: 30-00229

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

KGen Hot Spring LLC
696 Black Branch Road
Malvern, Arkansas 72104

3. PERMIT WRITER:

Patty Campbell, PE

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Fossil Fuel Electric Power Generation
NAICS Code: 221112

5. SUBMITTALS:

7/27/2010, 08/16/10, 09/16/10, 11/02/10 and 11/29/10

6. REVIEWER'S NOTES:

KGen Hot Spring LLC owns and operates a 620 megawatt (MW) natural gas-fired combined-cycle electric power plant (NAICS 221112) located at 696 Black Branch Road, Malvern, Hot Spring County, Arkansas 72104. This permitting action is necessary to renew and modify the permit as follows:

1. Update the Process Description;
2. Correct the auxiliary boiler (SN-05) as-built heat rating from 44.1 to 29.0 MMBtu/hr and revise the emission rates;
3. Correct the emergency generator (SN-32) as-built heat rating from 600 to 500 kilowatts (kW) and revise the emission rates;
4. Revise the two combustion turbine/HRSG/duct burner exhausts (SN-01 and SN-02) testing time frame from every five years for each turbine to alternately test one of the two turbines every five years for PM, PM₁₀, VOC and Formaldehyde, Specific Conditions (SC) #5, #13 and #26, respectively. SN-01 and SN-02 are identical in design so testing of only one turbine every five years is appropriate;

5. Clarify the procedures to conduct SO₂ emission monitoring, SC #9b;
6. Clarify exclusion in method of calculating the “24-hour average” for CO and NO_x, SC #14 and #18;
7. Request by facility to require KGen to operate CO and NO_x CEMS on each CT/HRSG/duct burner stack, SC #17 and #21. The CEMS must comply with the ADEQ CEMS Conditions, Appendix A. CEMS Condition Section II.E requires the CEMS to meet a minimum uptime of 95 percent each quarter for each pollutant measured. KGen requested that this requirement be limited applicability to the 95 percent availability requirement to calendar quarters with operating hours of at least 760 hours in any quarter or some lower availability requirement (75% was suggested) before being subject to this requirement. ADEQ CEMS is a compliance mechanism to add consistency and clarification to monitoring requirements within the laws and regulations of the state of Arkansas. This request is outside the scope of a single permit modification and/or renewal and is denied;
8. Clarify that the NO_x ppm BACT Determination is a “24-hour average”, SC #20;
9. Correct a reference from SC #22 to SC #21, SC #18;
10. Update turbines formaldehyde emission factor, SC #24;
11. Correct (SN-01 through SN-04) with (SN-01 and SN-02), SC #29;
12. Add a provision that clarifies compliance for NO_x is determined through stack testing per §60.48a(k)(1), SC #29 (d) through (i);
13. Remove initial notification condition for startup of SN-01 and SN-02, previous SC #30. These notifications have been accomplished;
14. Remove initial CEMS notification conditions, previous SC #32 through #35. These notifications have been accomplished;
15. Acid Rain Program (Title V) compliance is Plantwide Condition (PWC) #12 and CAIR compliance is PWC #13. The combined certificate is in Appendix F;
16. Revise the cooling tower (SN-07 through SN-16) description to reflect as-built 10-cell, instead of 12-cell, and revise the emission rates. Remove SN-17 and SN-18 which were never installed;
17. Replace/correct “total suspended particle (TSP)” with “total dissolved solids (TDS)” for the cooling water permit limit in SN-07 through SN-16. EPA AP-42 emissions calculation methodology is based on a TDS not TSP;
18. Clarify the startup and shutdown events/times requirement, SC #31;
19. Add non-resettable hour meter requirement to Emergency Generator (SN-32);
20. Revise Emergency Fire Pump from Insignificant Activity (IA) to a source, SN-34;
21. Add 40 CFR 63 Subpart ZZZZ - *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, applicable provisions for SN-32 and SN-34, effective May 3, 2013;
22. Add Sludge Press, IA, A-13;
23. Revise the IA list to reflect the as-built diesel storage tank sizes and remove sulfuric acid and ammonia tanks; and
24. Add a Permit Shield.

With these modifications and renewal total permitted annual emission increases and decreases are: -0.1 tpy PM, -0.1 tpy PM₁₀, -0.4 tpy SO₂, -0.6 tpy VOC, -2.3 tpy CO, -1.4 tpy NO_x, 0.04

tpy acrolein, 0.04 tpy benzene, 0.01 tpy 1,3-butadiene, 0.24 tpy formaldehyde, 7.11 tpy hexane, 0.03 tpy PAH/POM, 0.06 tpy propylene oxide, 0.28 tpy toluene, 0.16 tpy xylene, -0.64 tpy acetaldehyde, -0.5 ethylbenzene, and -0.03 tpy chromium.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

Current CAO LIS 10-091 was for violation Carbon Monoxide CEMS monitor downtime in 1st Quarter 2009 of excess emission report (EER) reported 23,580 minutes of monitor downtime for SN-02. This equates to 81.76% of monitor uptime, thus failing to meet the minimum frequency of monitor uptime of 95%. KGen stated that the excess downtime resulted from a failure to perform a cylinder gas audit (CGA) in 4th Quarter 2008. Results of the successful CGA testing performed in February 2009 indicate that the CO emissions data collected and recorded by the CEMS was accurate despite of being invalidated as a result of the missed CGA. This permit does not address whether a CGA test is performed on time. It did attempt to modify the 95% monitor uptime for CEMS; however, this was denied.

8. PSD APPLICABILITY:

a. Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N

b. Is the facility categorized as a major source for PSD? Y
Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list?

If yes, explain why this permit modification not PSD?

Criteria Pollutants	PSD Significant Emission Increase (tpy)	Permit #1936-AOP-R0 Emissions Increase (tpy)	Draft Permit #1936-AOP-R5 Emission Totals (tpy)
PM ₁₀	15	490.0	244.9
SO ₂	40	215.3	107.2
Ozone	40 tpy of VOC	328.6 tpy of VOC	163.7
CO	100	1929.3	962.4
NO ₂	40 tpy of NO _x	545.6 tpy of NO _x	271.4

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
01 & 02	PM/PM ₁₀ , SO ₂ , VOC, CO and NO _x	NSPS Subpart GG (NO _x and SO ₂ only) PSD (all pollutants listed)
01 & 02	PM/PM ₁₀ , SO ₂ , NO _x	NSPS Subpart Da
05	Records only	NSPS Subpart Dc
32 & 34	HAPs	NESHAP Subpart ZZZZ

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard (µg/m ³)	Averaging Time	Highest Concentration (µg/m ³)	% of NAAQS
PM ₁₀	58.8	150	24-Hour	15.06124*	10%
SO ₂	27.5	80	Annual	0.18311	0.23%
		1300	3-Hour	4.714	0.37%
		365	24-Hour	1.985	0.55%
CO	241.4	10,000	8-Hour	64.28	0.65%
		40,000	1-Hour	114.62	0.29%
NO _x	94.2	100	Annual	0.844	0.85%
Pb	0.0005042	0.15	Rolling 3-month Period over 3 years (not to be exceeded in any	0	

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
			3 month period)		

* No Background needed because less than 50%.

Non-Criteria Pollutants:

#	Pollutant	TOTAL * Emission Rate	Relative Toxicity	Total (lb/hr) x 4.4	Reporting required?
		lb/hr			
	Acetaldehyde	0.1607	0.90	0.7070	No
1	Acrolein	0.02586	0.004	0.1132	Yes
2	Benzene	0.05523	0.20	0.2373	Yes
3	1,3-Butadiene	0.001781	0.007	0.0076	Yes
	Dichlorobenzene	0.00211	0.3	0.0053	No
	Ethylbenzene	0.1284	1.0	0.5652	No
4	Formaldehyde	1.03	0.20	4.532	Yes
5	Hexane	1.816	1.0	7.9899	Yes
	Naphthalene	0.006444	1.0	0.0284	No
6	PAH/POM	0.01015	0.001	0.0436	Yes
7	Propylene Oxide	0.1164	0.50	0.5122	Yes
8	Toluene	0.5271	1.0	2.3169	Yes
9	Xylene	0.2582	1.0	1.1343	Yes
10	Arsenic	0.0002018	0.0005	0.0009	Yes
	Beryllium	0.00001211	0.0008	0.0001	No
11	Cadmium	0.001110	0.001	0.0049	Yes
	Chromium	0.001412	0.5	0.0062	No
	Cobalt	0.00008474	0.01	0.0004	No
	Manganese	0.0003834	0.08	0.0017	No
12	Mercury	0.0002623	0.001	0.0012	Yes
	Nickel	0.002119	0.1	0.0093	No
	Selenium	0.00002421	0.01	0.0001	No

* Total of SN-01, 02, 05 & 32.

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value

(mg/m³), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

#	Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
1	Acrolein	0.23	0.0253	0.02586	N
	Benzene	1.60	0.1757	0.05523	Y
	1,3-Butadiene	4.424	0.4866	0.001781	Y
2	Formaldehyde	1.5	0.165	1.03	N
	Hexane	176.23	19.3853	1.816	Y
	PAH/POM***	52.43	5.77	0.01015	Y
	Propylene Oxide	4.748	0.5223	0.1164	Y
	Toluene	75.36	8.29	0.5271	Y
	Xylene	434.2	47.762	0.2582	Y
	Arsenic*	0.0033	0.000359	0.0002018	Y
3	Cadmium*	0.00218	0.0002393	0.001110	N
	Mercury*	0.01	0.0011	0.0002623	Y
4	Ammonia	17.41	1.9151	67.4	N

* PM Compounds

*** Naphthalene used as representative POM

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

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#	Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled ^B Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
1	Acrolein	2.3	0.00278	PASS
2	Formaldehyde	15.0	0.10577	PASS
3	Cadmium	0.0218	0.00005	PASS
5	Ammonia ^A	174.1	2.418	PASS

^A - Non-HAP, non-criteria pollutant, air contaminate

^B - Models done by Trinity Consultants in BREEZE. Imported into AERMOD, used ADEQ MetData.

Other Modeling: None

Odor: None

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Eq Eff	Comments
01 & 02	<p>*Manufr's Specs – criteria pollutants – BACT emissions except for ammonia</p> <p><u>Turbine</u>^A HAPs - AP-42 Table 3.1-3 (4/00) (except for Formaldehyd e)^C</p> <p><u>Burner</u>^B ^B AP-42 Table 1.4-2 (7/98)</p> <p>^C AP-42 Table 1.4-3 (7/98)</p> <p>^D AP-42 Table 1.4-4 (7/98)</p> <p>& 1.4-4 <u>Turbine</u>^C US EPA memo 08/21/01 "HAP Em Control Tech for New Stationary CT" from Sims Roy US EPA OAQPS Em Stds group – Combustion Div</p>	<p>OEM Specs</p> <p>*PM/PM₁₀ – 27.8 lb/hr</p> <p>*SO₂ – 2.0 gr/100scf = 13.3 lb/hr</p> <p>*VOC – 9.4 ppm = 19.0 lb/hr</p> <p>*CO – 21 ppm = 115.6 lb/hr</p> <p>*NO_x – 3.5 ppm = 31.9 lb/hr</p> <p>ammonia – 10.0 ppm = 33.7 lb/hr</p> <p><u>CT EF lb/MMBtu = lb/hr</u></p> <p>^A acetaldehyde - 4.00E-05 = 8.03E-02 lb/hr</p> <p>^A acrolein – 6.40E-06 = 1.28E-02</p> <p>^A benzene – 1.20E-05 = 2.41E-02</p> <p>^A 1,3-butadiene – 4.30E-07 = 8.63E-04 lb/hr</p> <p>^A ethylbenzene – 3.20E-05 = 6.42E-02 lb/hr</p> <p>^C frmldhyd – 2.02E-04 = 0.41lb/hr</p> <p>^A lead – ND</p> <p>^A naphthalene – 1.30E-06 = 2.61E-03 lb/hr</p> <p>^A PAH – 2.20E-06 = 4.42E-03</p> <p>^A propylene oxide – 2.90E-05 = 5.82E-02 lb/hr</p> <p>^A toluene - 1.30E-04 = 2.61E-01</p> <p>^A xylene – 6.40E-05 = 1.28E-01</p> <p><u>Duct Burners Emission Factor lb/MMscf = lb/hr</u></p> <p>^B acetaldehyde = 0.0</p> <p>^B acrolein – 0.0</p> <p>^D arsenic – 2.0E-04 = 9.80E-05</p> <p>^C benzene – 2.10E-03 = 1.03E-03</p> <p>^D cadmium – 1.1E-03 = 5.39E-04</p> <p>^C formaldehyde – 7.50E-02 = 3.68E-02 lb/hr</p> <p>^C hexane – 1.80E+00 = 8.82E-01</p> <p>^B lead – 5.00E-04 = 2.45E-04</p> <p>^D mercury – 2.6E-04 = 1.27E-04</p> <p>^B naphthalene – 6.10E-04 = 2.99E-04 lb/hr</p> <p>^B PAH – 8.82E-05 = 4.32E-03</p> <p>^B propylene oxide – 0.0</p> <p>^C toluene - 3.40E-03 = 1.67E-03</p> <p>^B xylene – 0.0</p>	SCR and low NO _x burners	71.4% for NO _x	<p><u>Combustion Turbines (CT)/HRSG</u> <u>SN-01 & SN-02 (Identical)</u> Natural gas (NG) is the only fuel used @ 8,760 hrs/yr CT Power Gen Cap = 170 MW CT Heat Input Cap = 2,007 MMBtu/hr Duct Burner (DB) Heat Input = 500 MMBtu/hr DB NG HHV = 1,020 MMBtu/10⁶ scf</p> <p>HAP emissions calculated as (Heat Input Capacity (Cap), MMBtu/hr) x (Emission Factor, lb/MMscf) / (MMBtu/MMscf)</p> <p>^A Turbine Heat Input = 2007 MMBtu/hr</p> <p>^B Duct Burner Heat Input = 500 MMBtu/hr</p> <p>^C Formaldehyde – Tests on lean premix stationary CT ranging in size from 10 MW to 170 MW, 95th percentile, EPA memo noted.</p> <p>To convert from (lb/MMBtu) to (lb/106 scf), multiply by the heat content of the fuel. If the heat content is not available, use 1020 Btu/scf. To convert from (lb/MMBtu) to (lb/hp-hr) use the following equation: lb/hp & hr ' lb/MMBtu heat input, MMBtu/hr 1/operating HP, 1/hp</p>

SN	Emission Factor Source (AP-42, testing)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Eq Eff	Comments
05	^A BACT ^B AP-42 Table 1.4-2 (7/98) ^C AP-42 Table 1.4-3 (7/98) ^D AP-42 Table 1.4-4 (7/98)	^A PM/PM ₁₀ - 0.01 Lb/MMBtu 0.3 lb/hr ^A SO ₂ - 2.0 gr/100scf = 0.2 lb/hr ^A VOC - 0.016 Lb/MMBtu = 0.5 lb/hr ^A CO - 0.15 Lb/MMBtu = 4.4 lb/hr ^A NO _x - 0.12 Lb/MMBtu = 3.5 lb/hr lb/MMscf ^B lead - 5.00E-04 = 1.42E-05 lb/hr ^C benzene - 2.10E-03 = 5.97E-05 lb/hr ^C formaldehyde - 7.50E-02 = 2.13E-03 lb/hr ^C hexane - 1.80E+00 = 5.12E-02 lb/hr ^C PAH/POM - 8.82E-05 = 2.51E-06 lb/hr ^C toluene - 3.40E-03 = 9.67E-05 lb/hr ^D arsenic - 2.00E-04 = 5.69E-06 lb/hr ^D cadmium - 1.10E-03 = 3.13E-05 lb/hr ^D mercury - 2.60E-04 = 7.39E-06 lb/hr	None	N/A	<u>Auxiliary Boiler</u> Natural gas (NG) is the only fuel used @2,000 hrs/yr Heat Input Cap = 29 MMBtu/hr NG HHV = 1,020 Btu/ scf Design Fuel Rate = 0.028 MMscf/hr Criteria emissions calculations (except SO ₂) - (Heat Input Cap, MMBtu/hr) x (BACT EF, lb/MMBtu) SO ₂ Em Rate (lb/hr) = Fuel S content (gr/100 scf) x Heat Rate (MMBtu/hr) x 2 (MW SO ₂ /MW S) / 7000 (gr/lb) x 1020 (MMBtu/10 ⁶ scf) HAP emissions calc as (Heat Input Capacity (Cap), MMBtu/hr) x (Emission Factor, lb/MMscf) / (MMBtu/MMscf)
07-16		10.5 MM gallons circulating water	Drift eliminators		<u>Cooling Tower 1</u> (10-cell) @8,760 hrs/yr
32	BACT & AP-42 3.4 Tables 3.4-3 & 4	<u>BACT</u> PM/PM ₁₀ - 1.77 lb/hr SO ₂ - 0.05 % wt VOC - 1.1 CO - 3.0 g/bhp-hr NO _x - 14 <u>Lb/MMBtu</u> Acrolein - 9.25E-05 Benzene - 9.33E-04 Formaldehyde - 1.18E-03 PAH - 1.68E-04 Toluene - 4.09E-04 Xylene - 2.85E-04	None	N/A	Emergency-use Generator @ 500 hrs/yr max w/diesel fuel Design Power Output = 500 kW Max heat Input = 4.69 MMBtu/hr Design Output = 670.5 bhp Heating Value Diesel = 19,300 Btu/lb <u>PM/PM₁₀ & SO₂ calc</u> as bhp x EF, g/bhp-hr / 453.59 g/lb <u>HAP emissions calc.</u> MMBtu/hr x EF, lb/MMBtu <u>SO₂ emission rate (lb/hr)</u> = % fuel S content x MMBtu/hr x 2 (ratio MWSO ₂ /MW S) x 10 ⁶ Btu/MMBtu / 19,300 Btu/lb

SN	Emission Factor Source (AP-42, testing)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Eq Eff	Comments
34	AP-42 3.3 Tables 3.3-1 & 2	<u>lb/MMBtu</u> PM/PM ₁₀ - 0.31 SO ₂ - 0.29 VOC - 0.36 CO - 0.95 NO _x - 4.41 Acrolein - 9.25E-05 Benzene - 9.33E-04 Formaldehyde - 1.18E-03 PAH - 1.68E-04 Toluene - 4.09E-04 Xylene - 2.85E-04	None	N/A	Emergency-use Fire Pump Max Heat Input = 1.4 MMBtu/hr @ 500 hrs/yr max w/diesel fuel Design Power Output = 200 bhp <u>Emissions calc as MMBtu/hr x EF lb/MMBtu</u>

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01, 02 CTs	PM/PM ₁₀	5 and/or 201A	Alternate CTs every 5 years	Confirmation of BACT Limits
	VOC	25A		
	SO ₂ , CO & NO _x	7E	Initial only	
	Ammonia (NH ₃)	ADEQ approved methodology	Alternate CTs every 5 years	
05	NO _x	7E	Initial only	Confirmation of BACT Limits
07 through 16	TDS		Monthly	§18.1004

14. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
01 & 02	CO	CEMS	Continuous	Y
	NO _x	CEMS	Continuous	Y

15. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01, 02, 05	All Performance Tests	N/A	On-going	Yes
01, 02	Sulfur in natural gas fuel	0.0006 lb SO ₂ / MMBtu of heat input	Monthly	Yes
01, 02, 05	Natural gas only	N/A	Verify by Inspector	Yes
05	Operating Hours	Nte 2,000 operating hours per consecutive 12-month period	Monthly	Yes
05	Quantity of Fuel Used	No limit	Monthly	No
07 through 16	Total Dissolved Solids (TDS)	Nte Level of 1280 ppm-w	Monthly	Yes
32	Operating Hours	Nte 500 operating hours per consecutive 12-month period	Monthly	Yes
34	Operating Hours	Nte 500 operating hours per consecutive 12-month period	Monthly	Yes

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
32 & 34	Sulfur in Diesel Fuel	a valid gas tariff; fuel purchase or pipeline transportation contract; vendor certification based on fuel sampling and analysis or other appropriate documentation; or periodic testing.	On-going	Yes
32 & 34	Develop and follow Routine Maintenance Plan	1. Change oil & filter every 500 op hrs or annually, whichever is first 2. Inspect air annually 3. inspect hoses/belts every 500 hrs or annually, whichever is first	On-going	No

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01, 02 & 05	5%	§18.501 and A.C.A.	Use of natural gas as the only fuel.
07 through 16	20%	§19.503 and A.C.A.	Use of drift eliminators
32 & 34	20%	§19.503 and A.C.A.	Use of diesel fuel

17. DELETED CONDITIONS:

Former SC	Justification for removal
5,13, 26	Reduce testing of the two CTs from every 5 years to alternately every 5 years.
5	Removed references to EPA Method 202. It is under review and shouldn't be used until EPA gives approval.
30	Initial Notifications have been met.
32-35	Initial Acid Rain conditions have been met. Current Acid rain requirements are fully listed in SC #31 and PWC #

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18. GROUP A INSIGNIFICANT ACTIVITIES:

Source Name	A	Emissions (tpy)						
		PM/ PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							S	Tot
Diesel Storage Tank, 250 gal cap	A-2	0.0	0.0	0.0007	0.0	0.0	0	0
Diesel Storage Tank, 800 gal cap	A-3	0.0	0.0	0.004	0.0	0.0	0	0
Oil/Water Separator (WW Treatment)	A-13	0.0	0.0	0.7	0.0	0.0	0	0
4 Inlet Chiller Cooling Towers	A-13	0.001	0.0	0.0	0.0	0.0	0	0
Sludge Press	A-13	1.3	0.0	0.0	0.0	0.0	0	0

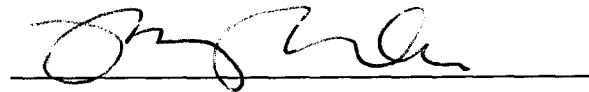
19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1936-AOP-R4, issued as an AA on 8/10/09

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.



Paula Parker, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 12-15-10

Facility Name: KGen Hot Spring LLC
 Permit Number: 1936-AOP-R5 Renewal
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\$/ton factor	22.07	Annual Chargeable Emissions (tpy)	1099.7
Permit Type	Modification	Permit Fee \$	1000

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	<input type="checkbox"/>
If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$	0
Total Permit Fee Chargeable Emissions (tpy)	-2.5
Initial Title V Permit Fee Chargeable Emissions (tpy)	

HAPs not included in VOC or PM: Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride

Air Contaminants: All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensible PM, H2S in TRS, etc.)

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM	☑	262.3	262.2	-0.1	-0.1	262.2
PM ₁₀	☑	245	244.9	-0.1		
SO ₂	☑	107.6	107.2	-0.4	-0.4	107.2
VOC	☑	164.3	163.7	-0.6	-0.6	163.7
CO	☑	964.7	962.4	-2.3		
NO _x	☑	272.8	271.4	-1.4	-1.4	271.4
Lead (Pb)	☑	0.03	0.03	0		
Acrolein	☑	0.1	0.14	0.04		
Benzene	☑	0.21	0.25	0.04		
1,3-Butadiene	☑	0.02	0.03	0.01		
Formaldehyde	☑	4.19	4.43	0.24		
Hexane	☑	0.67	7.78	7.11		
PAH/POM	☑	0.04	0.07	0.03		
Propylene Oxide	☑	0.46	0.52	0.06		
Toluene	☑	2.05	2.33	0.28		
Xylene	☑	1	1.16	0.16		
Arsenic	☑	0.03	0.03	0		
Cadmium	☑	0.03	0.03	0		
Mercury	☑	0.03	0.03	0		
Ammonia (NH ₃)	☑	295.2	295.2	0	0	295.2
Acetaldehyde	☑	0.64	0	-0.64		
Ethylbenzene	☑	0.5	0	-0.5		
Chromium	☑	0.03	0	-0.03		
3/10/11 pc		0	0	0		