State of Ohio Environmental Protection Agency

RE: FINAL PERMIT TO INSTALL **CERTIFIED MAIL**
WASHINGTON COUNTY

Street Address: 122 S. Front Street
Lazarus Gov. Center **TELE:** (614) 644-3020 **FAX:** (614) 644-2329
Mailing Address: Lazarus Gov. Center P.O. Box 1049

Application No: 06-07027

DATE: 10/29/2002

Iris Energy LLC
James Wolf
50 Danbury Rd., Suite 100
Wilton, CT 068974444

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
236 East Town Street, Room 300
Columbus, Ohio 43215

Very truly yours,

Michael W. Ahern

Michael W. Ahern, Supervisor
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA **SEDO**

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

Permit To Install		**Issue Date:**	**10/29/2002**
Terms and Conditions		**Effective Date:**	**10/29/2002**

FINAL PERMIT TO INSTALL 06-07027

Application Number:	06-07027
APS Premise Number:	0684000215
Permit Fee:	**$400**
Name of Facility:	Iris Energy LLC
Person to Contact:	James Wolf
Address:	50 Danbury Rd., Suite 100 Wilton, CT 068974444

Location of proposed air contaminant source(s) [emissions unit(s)]:
Rt. 2, Box 310
Waterford, **Ohio**

Description of proposed emissions unit(s):
Storage piles.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

Part I - GENERAL TERMS AND CONDITIONS

A. Permit to Install General Terms and Conditions

1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

2. Reporting Requirements Related to Monitoring and Record keeping Requirements

The permittee shall submit required reports in the following manner:

a. Reports of any required monitoring and/or record keeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.

b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and record keeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized

representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

6. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

7. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

8. Termination of Permit to Install

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

9. Construction of New Sources(s)

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio

Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

10. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

11. Applicability

This Permit to Install is applicable only to the emissions unit(s) identified in the Permit to Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

12. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

13. Source Operation and Operating Permit Requirements After Completion of Construction

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within thirty (30) days after commencing operation of the emissions unit(s) covered by this permit.

14. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

15. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

B. Permit to Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

Pollutant	Tons Per Year
PE	22.6
PM_{10}	9.5

Emissions Unit ID: **F001**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	from the combustion of fuels in such vehicles (i.e., pile working) (see Section A.2.a for identification of storage piles)	Applicable Rules/Requirements
F001 - Coal Storage Piles.		OAC rule 3745-31-05(A)(3)
Chapter 31 modification		
Terms in this permit supersede those identified in PTI 06-06926 issued on 9/21/02 for this emission unit.		
		OAC rule 3745-31-05(A)(3)
load-in and load-out of storage piles (see Section A.2.a for identification of storage piles)		
	wind erosion from storage piles (see Section A.2.a for identification of storage piles)	
		OAC rule 3745-17-07(B) OAC rule 3745-17-08 (B)
		OAC rule 3745-31-05(A)(3)
operation of vehicles on top of coal storage piles, excluding emissions		

	Applicable Emissions Limitations/Control Measures	
OAC rule 3745-17-07(B)	Particulate emissions (PE) shall not exceed 19.9 tons/yr. PM_{10} emissions shall not exceed 8.2 tons/yr.	Visible particulate emissions shall not exceed 20% opacity as a 3-minute average. The control measures specified by this rule are less stringent than the control measures established pursuant to OAC rule 3745-31-05(A)(3).
OAC rule 3745-17-08 (B)	There shall be no visible particulate emissions except for 5 minutes during any 60-minute period of time.	There shall be no visible particulate emissions except for 5 minutes during any 60-minute period of time.
OAC rule 3745-31-05(A)(3)	Best available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust (see Sections A.2.b, A.2.c and A.2.g) The emission limitation and control measures specified by these rules are less stringent than the emission limitation and control measures established pursuant to OAC rule 3745-31-05(A)(3).	Best available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust (see Sections A.2.e through A.2.g) The emission limitation and control measures specified by these rules are less stringent than the emission limitation and control measures established pursuant to OAC rule 3745-31-05(A)(3).
OAC rule 3745-17-07(B) OAC rule 3745-17-08 (B)	Best available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust (see Sections A.2.d, A.2.f and A.2.g) The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(B).	

2. Additional Terms and Conditions

2.a The storage piles that are covered by this permit and subject to the requirements of OAC rule 3745-31-05(A)(3), OAC rule 3745-17-07(B), and OAC rule 3745-17-08 (B) are listed below:

High BTU Coal Storage Pile
Low BTU Coal Storage Pile
Emergency Coal Storage Pile

2.b The permittee shall employ best available control measures on all load-in and load-out operations associated with the storage piles for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's permit application, the permittee has committed to use discharge chutes having cover plates with water/dust suppressant spray bars, and underground vibratory feeders, for load-in and load-out operations respectively, to ensure compliance. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

2.c The above-mentioned control measure(s) shall be employed for each load-in and load-out operation of each storage pile if the permittee determines, as a result of the inspection conducted pursuant to the monitoring section of this permit, that the control measure(s) are necessary to ensure compliance with the above-mentioned applicable requirements. Any required implementation of the control measure(s) shall continue during any such operation until further observation confirms that use of the measure(s) is unnecessary.

2.d The permittee shall employ best available control measures on all pile working operations associated with the storage piles for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's permit application, the permittee has committed to apply water and/or other suitable dust suppression chemicals to ensure compliance. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

2.e The permittee shall employ best available control measures for wind erosion from the surfaces of all storage piles for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's permit application, the permittee has committed to apply water and/or other suitable dust suppression chemicals to ensure compliance. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

2.f The above-mentioned control measure(s) shall be employed for each pile working

operation and wind erosion from each pile if the permittee determines, as a result of the inspection conducted pursuant to the monitoring section of this permit, that the control measure(s) are necessary to ensure compliance with the above-mentioned applicable requirements. Implementation of the control measure(s) shall not be necessary for a storage pile that is covered with snow and/or ice or if precipitation has occurred that is sufficient for that day to ensure compliance with the above-mentioned applicable requirements.

2.g Implementation of the above-mentioned control measure(s) in accordance with the terms and conditions of this permit is appropriate and sufficient to satisfy the requirements of OAC rules 3745-17-08 and 3745-31-05.

B. Operational Restrictions

None

C. Monitoring and/or Record keeping Requirements

1. Except as otherwise provided in this section, the permittee shall perform inspections of each load-in operation at each storage pile in accordance with the following frequencies:

storage pile identification	minimum load-in inspection frequency
High BTU Coal Storage Pile	Daily
Low BTU Coal Storage Pile	Daily
Emergency Coal Storage Pile	Daily

2. Except as otherwise provided in this section, the permittee shall perform inspections of each load-out operation at each storage pile in accordance with the following frequencies:

storage pile identification	minimum load-out inspection frequency
High BTU Coal Storage Pile	Daily
Low BTU Coal Storage Pile	Daily
Emergency Coal Storage Pile	Daily

3. Except as otherwise provided in this section, the permittee shall perform inspections of each pile working operation associated with each storage pile in accordance with the following frequencies:

storage pile identification	minimum pile working inspection frequency
High BTU Coal Storage Pile	Daily
Low BTU Coal Storage Pile	Daily
Emergency Coal Storage Pile	Daily

4. Except as otherwise provided in this section, the permittee shall perform inspections of the wind erosion from pile surfaces associated with each storage pile in accordance with the following frequencies:

storage pile identification	minimum wind erosion inspection frequency
High BTU Coal Storage Pile	Daily
Low BTU Coal Storage Pile	Daily
Emergency Coal Storage Pile	Daily

5. No inspection shall be necessary for wind erosion from the surface of a storage pile when the pile is covered with snow and/or ice and for any storage pile activity if precipitation has occurred that is sufficient for that day to ensure compliance with the above-mentioned applicable requirements. Any required inspection that is not performed due to any of the above identified events shall be performed as soon as such event(s) has (have) ended, except if the next required inspection is within one week.

6. The purpose of the inspections is to determine the need for implementing the control measures specified in this permit for load-in and load-out of a storage pile, pile working operations, and wind erosion from the surface of a storage pile. The inspections shall be performed during representative, normal storage pile operating conditions.

7. The permittee may, upon receipt of written approval from the Ohio EPA Southeast District Office, modify the above-mentioned inspection frequencies if operating experience indicates that less frequent inspections would be sufficient to ensure compliance with the above-mentioned applicable requirements.

8. The permittee shall maintain records of the following information:

a. The date and reason any required inspection was not performed, including those inspections that were not performed due to snow and/or ice cover or precipitation;

b. The date of each inspection where it was determined by the permittee that it was necessary to implement the control measures;

c. The dates the control measures were implemented; and

d. On a calendar quarter basis, the total number of days the control measures were implemented and, for wind erosion from pile surfaces, the total number of days where snow and/or ice cover or precipitation were sufficient to not require the control measure(s).

The information required in 8.d. shall be kept for (i) the load-in operations (ii) the load-out operations, (iii) the pile working operations, and (iv) the pile surfaces (wind erosion), and shall be updated on a calendar quarter basis within 30 days after the end of each calendar quarter.

D. Reporting Requirements

1. The permittee shall submit deviation reports that identify any of the following occurrences:

a. Each day during which an inspection was not performed by the required frequency, excluding an inspection which was not performed due to an exemption for snow and/or ice cover or precipitation; and

b. Each instance when a control measure, that was to be implemented as a result of an inspection, was not implemented.

2. The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following method(s):

1. Emission Limitation:
There shall be no visible particulate emissions from load-in and load-out operations except for five minutes in any 60-minute period of time.

Applicable Compliance Method:
If required, compliance with the visible emission limitation shall be determined in accordance with Test Method 22 as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 1996, and the modifications listed in paragraphs (B)(4)(a) through (B)(4)(c) of OAC rule 3745-17-03.

2. Emission Limitation:
There shall be no visible particulate emissions from wind erosion except for five minutes in any 60-minute period of time.

Applicable Compliance Method:
If required, compliance with the visible emission limitation shall be determined in accordance with Test Method 22 as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 1996, and the modifications listed in paragraphs (B)(4)(a) through (B)(4)(c) of OAC rule 3745-17-03.

3. Emission Limitation:
Visible particulate emissions associated with pile working operations shall not exceed 20% opacity as a 3-minute average.

Applicable Compliance Method:
If required, compliance with the visible emission limitation shall be determined in accordance with Test Method 9 as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 1996, and the modifications listed in paragraphs (B)(4)(a) through (B)(4)(c) of OAC rule 3745-17-03.

4. Emission Limitation:
PE shall not exceed 19.9 tons/yr.

Applicable Compliance Method:
Compliance with the tons/yr emission limitation shall be demonstrated by the following one time calculation based on the emission factor calculations in AP-42 sections 13.2.4, January, 1995 (load-in and load-out), 13.2.2.2, September, 1998 (pile working), and USEPA document 'Control of Open Fugitive Dust Sources', September, 1988 (wind erosion).

Load-in and Load-out:

$E = k\ (0.0032)[(U/5)^{1.3}/(M/2)^{1.4}]$

E = emission factor expressed in pounds (lbs) / ton
k = particle size multiplier (dimension less) = 0.74
U = mean wind speed expressed in miles per hour (MPH) = 9.1
M = material moisture content (%) = 6

E = 0.0011079 lb/ton
Maximum annual throughput = 3,504,000 tons/yr

Annual load-in emissions = 0.0011079 lb PE/ton x 3,504,000 tons/yr x 1 ton/2000 lbs
= 1.94 tons/yr
Annual load-out emissions = 0.0011079 lb PE/ton x 3,504,000 tons/yr x 1 ton/2000 lbs
= 1.94 tons PE/yr

Load-in and load-out for emergency storage plie:
(Truck load-in and load-out)

$EF=[\{k(s/12)^a(W/3)^b\}/(M/0.2)^c][(365-p)/365)]$

EF = emission factor expressed in pounds (lbs) / vehicle mile traveled (VMT)
k = empirical constant = 10 for total suspended particulate
a = empirical constant = 0.8 for total suspended particulate
b = empirical constant = 0.5 for total suspended particulate
c = empirical constant = 0.4 for total suspended particulate
s = surface material silt content (%) = 4
W = mean vehicle weight (tons) = 80
p = number of days with at least 0.1 inch precipitation per year = 145
M = surface material moisture content under dry conditions = 6

EF = 3.32 lbs/VMT
Annual VMT = 250,000 tons/turnover x 1 turnover/year x 18 tons/one-way trip x factor of 2* x 575 feet/trip x 1 mile/5,280 feet = 3,250 VMT
*(A turnover includes both creating the emergency pile and removing the coal from it, thus a factor of 2 is used to adjust the one-way trips for load-in and load-out)
Annual Emergency Pile Load-in and Load-out Emissions = 3.32 lbs PE/VMT x 3,250 VMT x 1 ton/2000 lbs = 5.01 tons PE/yr

Pile Working:

$EF=[\{k(s/12)^a(W/3)^b\}/(M/0.2)^c][(365-p)/365)]$

EF = emission factor expressed in pounds (lbs) / vehicle mile traveled (VMT)
k = empirical constant = 10 for total suspended particulate
a = empirical constant = 0.8 for total suspended particulate
b = empirical constant = 0.5 for total suspended particulate
c = empirical constant = 0.4 for total suspended particulate
s = surface material silt content (%) = 4
W = mean vehicle weight (tons) = 35
p = number of days with at least 0.1 inch precipitation per year = 145
M = surface material moisture content under dry conditions = 6

EF = 2.19 lbs/VMT
Annual VMT = 1,095

Annual Pile Working Emissions = 2.19 lbs PE/VMT x 1,095 VMT x 1 ton/2000 lbs
= 1.20 tons PE/yr

Wind Erosion:

E = 1.7 (s/1.5) ({365-p}/235) (f/15)

E = Total Suspended Particulate Emission Factor (lb/day/acre)
s = silt content (%) = 4
p = number of days with at least 0.01 inch precipitation per year = 145
f = % of time wind speed exceeds 12 mph = 30

E = 8.49 lbs/day/acre
Total Area of Piles = 6.284 acres

Annual Wind Erosion Emissions = 9.73 tons/yr

Total Annual Storage Pile PE Emissions = Load-in + Load-out + Emergency Pile Load-in/out + Pile Working + Wind Erosion
= 1.94 + 1.94 + 5.01 + 1.20 + 9.73
= 19.82 tons PE/yr

5. Emission Limitation:
PM_{10} emissions shall not exceed 8.2 tons/yr.

Applicable Compliance Method:

Compliance with the tons/yr emission limitation shall be demonstrated by the following one time calculation based on the emission factor calculations in AP-42 sections 13.2.4, January, 1995 (load-in and load-out), 13.2.2.2, September, 1998 (pile working), and USEPA document 'Control of Open Fugitive Dust Sources', September, 1988 (wind erosion).

Load-in and Load-out:

$E = k\ (0.0032)[(U/5)^{1.3}/(M/2)^{1.4}]$

E = emission factor expressed in pounds (lbs) / ton
k = particle size multiplier (dimension less) = 0.35
U = mean wind speed expressed in miles per hour (MPH) = 9.1
M = material moisture content (%) = 6

E = 0.000524 lb/ton
Maximum annual throughput = 3,504,000 tons/yr

Annual load-in emissions = 0.000524 lb PM_{10}/ton x 3,504,000 tons/yr x 1 ton/2000 lbs
= 0.92 ton/yr
Annual load-out emissions = 0.000524 lb PM_{10}/ton x 3,504,000 tons/yr x 1 ton/2000 lbs
= 0.92 ton PM_{10}/yr

Load-in and load-out for emergency storage plie:
(Truck load-in and load-out)

$EF=[\{k(s/12)^a(W/3)^b\}/(M/0.2)^c][(365-p)/365)]$

EF = emission factor expressed in pounds (lbs) / vehicle mile traveled (VMT)
k = empirical constant = 2.6 for PM_{10}
a = empirical constant = 0.8 for PM_{10}
b = empirical constant = 0.4 for PM_{10}
c = empirical constant = 0.3 for PM_{10}
s = surface material silt content (%) = 4
W = mean vehicle weight (tons) = 80
p = number of days with at least 0.1 inch precipitation per year = 145
M = surface material moisture content under dry conditions = 6

EF = 0.873 lbs/VMT

Annual VMT = 250,000 tons/turnover x 1 turnover/year x 18 tons/one-way trip x factor of 2* x 575 feet/trip x 1 mile/5,280 feet = 3,250 VMT

*(A turnover includes both creating the emergency pile and removing the coal from it, thus a factor of 2 is used to adjust the one-way trips for load-in and load-out)

Annual Emergency Pile Load-in and Load-out Emissions = 0.873 lbs PE/VMT x 3,250 VMT x 1 ton/2000 lbs = 1.32 tons PM_{10}/yr

Pile Working:

$EF=[\{k(s/12)^a(W/3)^b\}/(M/0.2)^c][(365-p)/365)]$

EF = emission factor expressed in pounds (lbs) / vehicle mile traveled (VMT)
k = empirical constant = 2.6 for PM_{10}
a = empirical constant = 0.8 for PM_{10}
b = empirical constant = 0.4 for PM_{10}
c = empirical constant = 0.3 for PM_{10}
s = surface material silt content (%) = 4
W = mean vehicle weight (tons) = 35
p = number of days with at least 0.1 inch precipitation per year = 145
M = surface material moisture content under dry conditions = 6

EF = 0.63 lb/VMT
Annual VMT = 1,095

Annual Pile Working Emissions = 0.63 lb PM_{10}/VMT x 1,095 VMT x 1 ton/2000 lbs
= 0.34 ton PM_{10}/yr

Wind Erosion:

E = 1.7 (s/1.5) ({365-p}/235) (f/15)

E = Total Suspended Particulate Emission Factor (lb/day/acre)
s = silt content (%) = 4
p = number of days with at least 0.01 inch precipitation per year = 145
f = % of time wind speed exceeds 12 mph = 30

E = 8.49 lbs/day/acre
Total Area of Piles = 6.284 acres

Annual Wind Erosion Emissions = 9.73 tons/yr total particulate

PM_{10} Emissions = Total PE/2.1 (Based on AP-42 particle size coefficients of 0.74 for total suspended particulate and 0.35 for PM_{10}) = 4.64 tons/yr

Total Annual Storage Pile PM_{10} Emissions = Load-in + Load-out + Emergency Pile Load-in/out + Pile Working + Wind Erosion

= 0.92 + 0.92 + 1.32 + 0.34 + 4.64
= 8.14 tons PM_{10}/yr

F. Miscellaneous Requirements

None

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	OAC rule 3745-17-07(B) OAC rule 3745-17-08 (B)
F003 - Material Handling, including coal conveying, and transfer and Synfuel conveying and transfer. Chapter 31 modification Terms in this permit supersede those identified in PTI 06-06926 issued on 9/21/02 for this emission unit.	OAC rule 3745-31-05(A)(3) 40 CFR Part 60 Subpart Y	

Applicable Emissions Limitations/Control Measures	
Particulate emissions (PE) shall not exceed 2.7 tons/yr. PM_{10} emissions shall not exceed 1.3 ton/yr. Best available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust (see Sections A.2.b and A.2.c) The requirements of this rule also include compliance with the requirements of 40 CFR Part 60 Subpart Y. The permittee shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal*, gases which exhibit 20 percent opacity or greater. * "coal" as used in this standard would include Synfuel which is coal after treatment with the Synfuel reagent The emission limitation and control measures specified by these rules are less stringent than the emission limitation and control measures	established pursuant to OAC rule 3745-31-05(A)(3).

2. Additional Terms and Conditions

2.a The coal/Synfuel handling operations, including conveyors and transfer points, that are covered by this permit and subject to the requirements of OAC rule 3745-31-05(A)(3), OAC rule 3745-17-07(B), OAC rule 3745-17-08 (B), and 40 CFR Part 60 Subpart Y are listed below:

Reclaim "A"/"B" Conveyors
Transfer from Reclaim "A"/"B" Conveyors to Crusher Feed Conveyor
Crusher Feed Conveyor
Post Crusher Conveyor
Transfer from Post Crusher Conveyor to Plant Feed Conveyor
Plant Feed Conveyor
Transfer from Plant Feed Conveyor to Synfuel Plant
Transfer from Synfuel Plant to Synfuel Collecting Conveyor
Synfuel Collecting Conveyor
Transfer from Synfuel Collecting Conveyor to Synfuel Transfer/Direct Sales Conveyors
Synfuel Transfer Conveyor
Direct Sales Synfuel Conveyor

2.b The permittee shall employ best available control measures for all the coal/Synfuel material handling operations listed above, for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's permit application, Synfuel contains a chemical reagent that acts as a dust suppressant. Each coal/Synfuel handling operation listed above shall be adequately enclosed to sufficiently minimize particulate emissions to levels that will demonstrate compliance; and transfer from the plant feed conveyor to the Synfuel plant will be a wet process. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

2.c Implementation of the above-mentioned control measure(s) in accordance with the terms and conditions of this permit is appropriate and sufficient to satisfy the requirements of OAC rules 3745-17-08 and 3745-31-05.

2.d The application and enforcement of the provisions of the New Source Performance Standards (NSPS), as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60, are delegated to the Ohio Environmental Protection Agency. The requirements of 40 CFR Part 60 are also federally enforceable.

B. Operational Restrictions

None

C. Monitoring and/or Record keeping Requirements

1. The permittee shall perform daily inspections, when the coal/Synfuel handling operations, conveyors, and transfer points are in operation and when the weather conditions allow, for any visible fugitive particulate emissions from the egress points covered in this emissions unit. The presence or absence of any visible fugitive emissions shall be noted in an operations log. At a minimum, the log shall maintain a record of the date of each inspection and/or the reason why the inspection was not completed at the frequency required in this permit (daily or adjusted per the following section). If visible emissions are observed, the permittee shall also note the following in the operations log:

a. The location and color of the emissions;

b. Whether the emissions are representative of normal operations;

c. If the emissions are not representative of normal operations, the cause of the abnormal emissions;

d. The total duration of any visible emission incident; and

e. Any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

The information required above shall be kept separately for the coal/Synfuel conveyors and the coal/Synfuel transfer points.

2. The permittee may, upon receipt of written approval from the Ohio EPA Southeast District

Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

D. Reporting Requirements

1. The permittee shall submit semiannual written reports which:

a. Identify all days during which any visible fugitive particulate emissions that were not representative of normal operations were observed from the egress points serving this emissions unit;

b. Describe any corrective actions taken to minimize or eliminate such visible fugitive particulate emissions; and

c. Identify any days in which an inspection was not conducted as required by this permit.

These reports shall be submitted to the Ohio EPA Southeast District Office by January 31 and July 31 of each year and shall cover the previous 6-month period. If no visible emissions are observed during a given period, the permittee shall submit a report which states that no visible emissions were observed during that period. (These reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

2. Pursuant to the NSPS, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

a. Construction date (no later than 30 days after such date);

b. Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);

c. Actual start-up date (within 15 days after such date); and

d. Date of performance testing (if required, at least 30 days prior to testing).

Reports are to be sent to:

Ohio Environmental Protection Agency
DAPC - Permit Management Unit
P. O. Box 163669

Columbus, Ohio 43216-3669

and

Southeast District Office of the Ohio EPA
Division of Air Pollution Control
2195 Front Street
Logan, Ohio 43138

E. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following method(s):

1. Emission Limitation:
PE shall not exceed 2.7 tons/yr.

Applicable Compliance Method:
Compliance with the tons per year emission limitation shall be demonstrated by the following one time calculation based on the emission factor calculation in AP-42 section 13.2.4, January, 1995.

Material Handling Emissions (per operation)

$E = k\ (0.0032)[(U/5)^{1.3}/(M/2)^{1.4}]$

E = emission factor expressed in pounds (lbs) / ton
k = particle size multiplier (dimension less) = 0.74
U = mean wind speed expressed in miles per hour (MPH) = 9.1
M = material moisture content (%) = 6

E = 0.0011079 lb/ton
Maximum annual throughput = 3,504,000 tons
Control efficiency (CE1) = 80% for full enclosure,
(CE2) 82.5% additional for Synfuel dust suppression;
(CE3) 95% for wet suppression (transfer to Synfuel plant)

Number of coal handling operations = 4 conveyors + 2 transfers = 6 operations
Coal handling emissions = 6 operations x 0.0011079 pound/ton x 3,504,000 tons x 1 ton/2000 pounds x (1-CE1) = 2.33 tons/yr

Transfer to Synfuel plant = 0.0011079 pound/ton x 3,504,000 tons x 1 ton/2000 pounds x (1-CE3) = 0.10 ton/yr

Number of Synfuel handling operations = 2 conveyors + 2 transfers = 4 operations
Synfuel handling emissions = 4 operations x 0.0011079 pound/ton x 3,504,000 tons x 1 ton/2000 pounds x (1-CE1) x (1-CE2) = 0.27 ton/yr

Total PE = Coal handling + Transfer to Synfuel plant + Synfuel handling
= 2.33 + 0.10 + 0.27
= 2.7 tons PE/yr

2. Emission Limitation:
PM_{10} emissions shall not exceed 1.3 tons/yr.

Applicable Compliance Method:
Compliance with the ton/yr emission limitation shall be demonstrated by the following one time calculation based on the emission factor calculation in AP-42 section 13.2.4, January, 1995.

Material Handling Emissions (per operation)

$E = k\ (0.0032)[(U/5)^{1.3}/(M/2)^{1.4}]$

E = emission factor expressed in pounds (lbs) / ton
k = particle size multiplier (dimension less) = 0.35
U = mean wind speed expressed in miles per hour (MPH) = 9.1
M = material moisture content (%) = 6

E = 0.000524 lb/ton
Maximum annual throughput = 3,504,000 tons
Control efficiency (CE1) = 80% for full enclosure,
(CE2) 82.5% additional for Synfuel dust suppression;
(CE3) 95% for wet suppression (transfer to Synfuel plant)

Number of coal handling operations = 4 conveyors + 2 transfer = 6 operations
Coal handling emissions = 6 operations x 0.000524 pound/ton x 3,504,000 tons x 1 ton/2000 pounds x (1-CE1) =1.1 ton/yr

Transfer to Synfuel plant = 0.000524 pound/ton x 3,504,000 tons x 1 ton/2000 pounds x (1-CE3) = 0.05 ton/yr

Number of Synfuel handling operations = 2 conveyors + 2 transfer = 4 operations
Synfuel handling emissions = 4 operations x 0.000524 pound/ton x 3,504,000 tons x 1 ton/2000 pounds x (1-CE1) x (1-CE2) = 0.13 ton/yr

Total PM_{10} emissions = Coal handling + Transfer to Synfuel plant + Synfuel handling
= 1.1 + 0.05 + 0.13
= 1.3 ton PM_{10}/yr

3. Emission Limitation:
The permittee shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system, and coal transfer and loading system processing coal, gases which exhibit 20 percent opacity or greater.

Compliance Method:
Compliance with the above visible emission limitation shall be based upon the monitoring / record keeping requirements outlined in Section C.1. above. Initial compliance shall be demonstrated based upon the visible particulate emission observations specified in Test Method 9 as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 1996, and the modifications listed in paragraphs (B)(3)(a) and (B)(3)(b) of OAC rule 3745-17-03. This standard would apply the same to Synfuel, the coal after treatment with the reagent.

4. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

The emission testing shall be conducted within 180 days of start-up of the emissions unit.

The emission testing shall be conducted to demonstrate compliance with the visible fugitive particulate emission limitation.

Method 9 from 40 CFR Part 60, Appendix A shall be employed to demonstrate compliance with the allowable opacity for visible emissions.

The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, Southeast District Office.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the

test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office's refusal to accept the results of the emission test(s).

Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

F. Miscellaneous Requirements

None

NEW SOURCE REVIEW FORM B

PTI Number: 06-07027 Facility ID: 0684000215

FACILITY NAME Iris Energy LLC

FACILITY DESCRIPTION Storage piles. CITY/TWP Waterford

Emissions Unit ID: **F003**

SIC CODE 2999 SCC CODE 30531009 EMISSIONS UNIT ID F001

EMISSIONS UNIT DESCRIPTION Coal Storage Piles.

DATE INSTALLED

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter			19.9		19.9
PM_{10}			8.2		8.2
Sulfur Dioxide					
Organic Compounds					
Nitrogen Oxides					
Carbon Monoxide					
Lead					
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?
Enter Determination Wet suppression, Underground vibratory load-out, Cover plates

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? NO

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? $

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaiminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? YES X NO

IDENTIFY THE AIR CONTAMINANTS:

9530.wpd

NEW SOURCE REVIEW FORM B

PTI Number: 06-07027 Facility ID: 0684000215

FACILITY NAME Iris Energy LLC

FACILITY DESCRIPTION Storage piles. CITY/TWP Waterford

Emissions Unit ID: **F003**

SIC CODE 2999 SCC CODE 30531011 EMISSIONS UNIT ID F003

EMISSIONS UNIT DESCRIPTION Material Handling, including coal conveying, and transfer and Synfuel conveying and transfer.

DATE INSTALLED

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter			2.7		2.7
PM_{10}			1.3		1.3
Sulfur Dioxide					
Organic Compounds					
Nitrogen Oxides					
Carbon Monoxide					
Lead					
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? Subpart Y PSD? OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?
Enter Determination Full enclosures, Dust suppression

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? NO

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? $

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaiminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? YES X NO

IDENTIFY THE AIR CONTAMINANTS: