

**Environmental Questions and Answers Regarding
The Proposed Hyperion Energy Center
SD Department of Environment and Natural Resources
February 25, 2011**

1. **What environmental permitting programs or environmental regulations are in place that apply to an oil refinery?** The following is a list of environmental permits and regulations implemented by the SD Department of Environment and Natural Resources (DENR) that would apply to an oil refinery in South Dakota.

Air Quality Permits

- ✓ **Prevention of Significant Deterioration (PSD) pre-construction air quality permit** – This permit is required prior to construction. It ensures the emissions from Hyperion will not degrade the air quality beyond that allowed by state or federal regulations and fully complies with all national ambient air quality standards (see question # 5 through # 11 for more information on this permit). The Board of Minerals and Environment issued Hyperion a PSD permit on August 20, 2009.
- ✓ **Title V air quality operating permit** – This permit is required after construction and operation has begun. It contains the operational requirements required by state and federal regulations and many of the conditions established in the PSD permit. The Title V permit is updated every five years.

Water Right Permit – A permit is required for all water uses, except reasonable domestic use. The purpose of the permit is to manage the use of our water resources. The four criteria to determine if a permit can be issued are unappropriated water must be available, existing rights will not be impaired, the proposed use is a beneficial use, and the proposed use is in the public's interest.

Surface Water Discharge Permits

- ✓ **Discharge permit** – A permit is required for any point source discharge to waters of the state. The purpose of the permit is to protect water quality by ensuring that any discharge will not violate the surface water quality standards of the receiving stream.
- ✓ **Storm water permit** – A permit is required for any construction site that disturbs more than one acre and for certain industrial activities. The purpose of the permit is to ensure pollution prevention plans are developed and in place to protect surface waters from sedimentation and other pollutants that may be carried from the site by runoff.

Hazardous Waste Disposal Requirements – Any business that generates hazardous waste must comply with state and federal hazardous waste requirements. The purpose of these regulations is to ensure hazardous wastes are properly handled and disposed to protect public health and the environment.

SARA Title III Reporting – Businesses that store hazardous materials on-site must report the amount of material stored or released from the site. The purpose of the reporting is to provide the local community information about these materials as part of the public's "right to know" and to also allow for better emergency response preparation.

Underground and Aboveground Storage Tanks – Any tank used to store petroleum or other regulated substances must comply with state and federal tank requirements. The purpose of these requirements is to protect public health and the environment by minimizing the risk from spills and leaks.

Drinking Water Regulations/Standards – Drinking water provided at the energy center or to any facility housing workers or employers of the energy center would have to meet state and federal drinking water standards.

Operator Certification – The operators of the drinking water treatment and the wastewater treatment systems would need to be state certified.

Engineering Plans and Specifications Review and Approval – Plans and specifications for water treatment plant, wastewater treatment plant, underground and aboveground storage tanks, etc. would need to be reviewed and approved by DENR prior to construction.

Ground Water Discharge Permit – A permit is required for certain facilities that plan to discharge water containing pollutants to ground water. The purpose of the permit is to protect ground water quality by ensuring that any discharge will not violate ground water quality standards.

Solid Waste Permit – A permit is required for operating a solid waste facility. The purpose of the permit is to require proper disposal of solid wastes to protect public health and the environment.

2. **How do I track the status of Hyperion's environmental permit applications?** DENR has developed a website for Hyperion-related information at <http://denr.sd.gov/hyperion.aspx>. At this site you can determine which environmental applications have been submitted by Hyperion, determine the status of those applications, and view a copy of the application and any documents related to the application. A hard copy of each application is also available in Pierre at the Joe Foss Building, 523 East Capitol, and in Vermillion at the Geological Survey Program offices, located on the third floor of the Akeley-Lawrence Science Center on the University of South Dakota campus.
3. **Does DENR have the experience necessary to permit and regulate Hyperion?** Yes! DENR has engineers (e.g. chemical, environmental, civil, geological, etc.) and scientists (e.g. chemistry, biology, hydrology, geology, microbiology, etc.) on staff who are qualified to review Hyperion's operations, draft environmental permits, inspect Hyperion's operations to ensure they are complying with state and federal environmental regulations, and monitor the surrounding environmental conditions.

- 4. Is DENR doing anything to monitor the air, surface water, and ground water quality in the area of the proposed energy center?** DENR established air, surface water, and ground water monitoring sites in and around the proposed energy center. The monitoring sites are gathering background data prior to construction and will collect data during construction and after the Hyperion Energy Center is operational. DENR will use this information to determine the environmental trends in the area. DENR began monitoring in 2009 and the data may be viewed at the following locations:
- ✓ <http://denr.sd.gov/hyperionaqmonitoring.aspx> for air quality;
 - ✓ <http://denr.sd.gov/HyperionSWQ.aspx> for surface water quality; and
 - ✓ <http://denr.sd.gov/hyperiongs.aspx> for ground water quality.
- 5. How will DENR know whether the emissions from Hyperion will violate the air quality standards before the plant is built?** As part of the Prevention of Significant Deterioration (PSD) pre-construction air quality permit, Hyperion must present approved modeling results showing the impact of its emissions on the air quality. DENR reviews the modeling submitted by Hyperion and conducts its own modeling to verify the company's results. The PSD permit will require Hyperion to conduct its own monitoring after operation of the energy center begins to verify compliance with the limits in the PSD permit.
- 6. What are the National Ambient Air Quality Standards?** The federal Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards for pollutants considered harmful to public health and the environment. EPA established six principal pollutants which are called "criteria" air pollutants. The six criteria air pollutants are: 1) particulate matter; 2) sulfur dioxide; 3) nitrogen dioxide; 4) carbon monoxide; 5) volatile organic compounds; and 6) lead. If air concentrations in an area are less than the National Ambient Air Quality Standards, the area is considered to have clean air. EPA refers to this as attainment. All of South Dakota is considered to have clean air and is in attainment with all air quality standards.

The following is a table of the clean air standards that apply in South Dakota.

Ambient Air Quality Standards			
Pollutant	Standard	Unit	Comments
Particulate Matter			
PM10 - 24 hour	150	ug/m3	Primary and Secondary Standard: Maximum 24 – hour average concentration with not more than one expected exceedance per year.
PM2.5 - 24 hour	35	ug/m3	Primary and Secondary Standard: based upon the annual 98th percentile averaged over a three year period.
PM2.5 - Annual	15	ug/m3	Primary and Secondary Standard: Maximum expected annual arithmetic mean averaged over three years.

Ambient Air Quality Standards			
Pollutant	Standard	Unit	Comments
Sulfur Dioxide			
Annual	0.030	ppm	Primary Standard: (80 micrograms per cubic meter of air), maximum annual arithmetic mean concentration.
24 hour	0.14	ppm	Primary Standard: (365 micrograms per cubic meter of air), maximum 24-hour average concentration not to be exceeded more than once per year.
3 hour	0.5	ppm	Secondary Standard: (1300 micrograms per cubic meter of air), maximum 3-hour average concentration not to be exceeded more than once per year.
1 hour	75	ppb	Primary Standard: The three year average of the 99th percentile of the daily maximum 1-hour average concentration.
Carbon Monoxide			
8 hour	9.0	ppm	Primary Standard: (10 milligrams per cubic meter of air), maximum 8-hour average concentration not to be exceeded more than once per year.
1 hour	35.0	ppm	Primary Standard: (40 milligrams per cubic meter of air), maximum 1-hour average concentration not to be exceeded more than once per year.
Ozone			
8 hour	0.080	ppm	Primary and Secondary Standard: The 3-year average of the fourth highest yearly maximum 8-hour average concentration.
Nitrogen Dioxide			
Annual	0.053	ppm	Primary and Secondary Standard: (100 micrograms per cubic meter of air), maximum annual arithmetic mean concentration.
1 hour	100	ppb	Primary Standard: The three year average of the 98th percentile of the daily maximum 1-hour average concentration

Ambient Air Quality Standards			
Pollutant	Standard	Unit	Comments
Lead			
Quarterly Average	1.5	ug/m3	Primary and Secondary Standard: The maximum arithmetic mean averaged over a calendar quarter.
3 month Average	0.15	ug/m3	Primary and Secondary Standard: The three year average of the yearly maximum 3-month rolling average.

7. Is Hyperion choosing South Dakota because the state has clean air and that will allow them to pollute more than building in another state? No! Current federal and state regulations allow growth in clean air areas but set limits on the maximum allowable increase an area may experience. This maximum allowable increase is called the Prevention of Significant Deterioration increments or PSD increments. The maximum allowable increase for all clean air areas in the United States is the same. So, if Hyperion had chosen any other area in the United States that was in attainment with air quality standards, the same PSD increment would apply. The following are the PSD increments specified in EPA's federal air quality regulations that apply to attainment areas in the United States, and which will apply to Hyperion's energy center in Union County.

- ✓ PM10 - 24-hour maximum = 30 micrograms per cubic meter;
- ✓ PM10 - annual arithmetic mean = 17 micrograms per cubic meter;
- ✓ Sulfur dioxide - annual arithmetic mean = 0.008 parts per million;
- ✓ Sulfur dioxide - 24-hour maximum = 0.034 parts per million;
- ✓ Sulfur dioxide - 3-hour maximum = 0.190 parts per million; and
- ✓ Nitrogen dioxide - annual arithmetic mean = 0.013 parts per million.

8. Hyperion’s PSD application shows it will emit several tons of various air pollutants. Are there any of those pollutants being emitted in Union County now and, if so, how much? Yes, there are a number of sources of air pollutants now in Union County to include vehicles, small industry, etc. The U.S. Environmental Protection Agency (EPA) completed a study of all counties in the United States in 2002 to determine the amount of current emissions in each county. The following table shows a comparison between Hyperion’s air emissions based on its PSD application, PSD permit, and its request to extend its construction deadline to the air emissions calculated by EPA from both Union and Minnehaha County.

**HYPERION VERSUS COUNTY AIR EMISSIONS
TONS OF POLLUTANT
RESULTS ARE IN ANNUAL AMOUNTS**

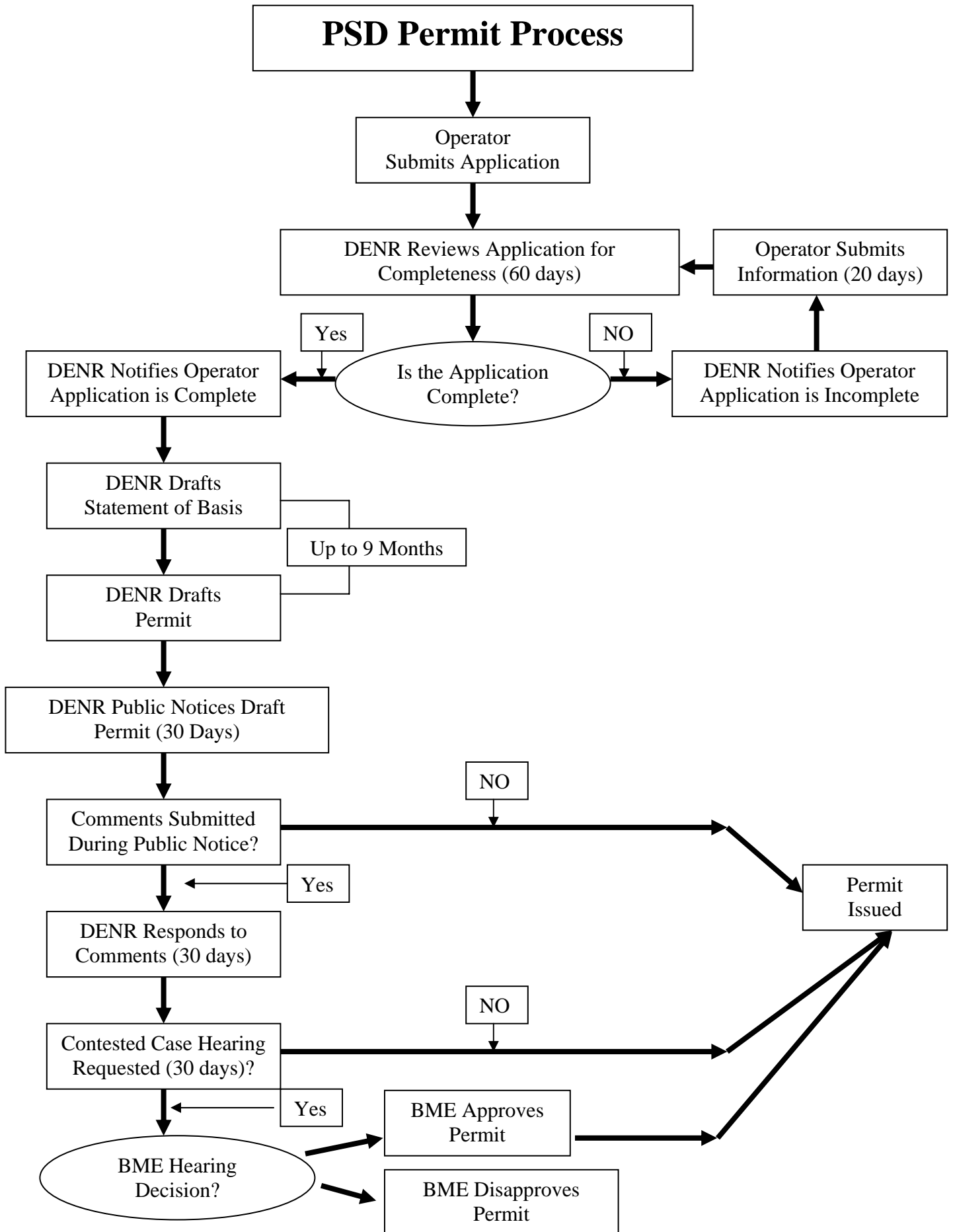
Pollutant	Hyperion Total ¹	Union County Total	Union County Vehicles	Minnehaha County Total	Minnehaha County Vehicles
Particulate matter 10 microns in diameter or less	1,001	4,521	7	10,930	23
Particulate matter 2.5 microns in diameter or less	1,001 ²	909	23	2,076	61
Sulfur dioxide	365	1,532	30	3,320	106
Nitrogen oxides	656	2,191	1,169	6,538	3,532
Volatile organic compounds	406	1,007	454	7,171	2,388
Carbon monoxide	1,860	8,853	6,728	44,346	30,027

¹ – The estimated air emissions from Hyperion’s Energy Center are based on the estimated annual emissions noted in the revised Table 1.4-1 of Hyperion’s PSD application updated to take into account the reduction in emissions for the tank farm thermal oxidizer required by the PSD permit and the proposed changes to the sulfur recovery plant identified in Hyperion’s application to extend the construction deadline; and

² – For the modeling analysis, Hyperion assumed all particulate matter will be 2.5 microns in diameter or less. Therefore, the amount of particulate matter 10 microns in diameter or less will be equivalent to the amount of particualte matter 2.5 microns in diameter or less.

Hyperion’s limited air emissions will be approximately 28% of the total for Union County and approximately 7% of the total of Minnehaha County. If Hyperion’s limited air emissions are added to the estimated amount for Union County, the total Union County emissions will be about 33% of the total emissions for Minnehaha County.

9. How does the Prevention of Significant Deterioration (PSD) air quality permitting process work? The following is a flowchart showing the PSD permit process.



- 10. How will DENR ensure Hyperion is meeting the requirements of their Prevention of Significant Deterioration air quality permit?** Hyperion will be required to install, operate and maintain continuous emission monitoring equipment, periodically conduct stack performance tests, maintain appropriate records, and periodically submit reports. In addition, state inspectors will inspect Hyperion's operations to review all permit requirements and determine if the operations are in compliance. In addition, as outlined in question #4, DENR established air quality monitoring sites around the proposed Hyperion site to gather background data.
- 11. Is it possible that Hyperion may be required to control air emissions better than what is currently required in California?** Yes! The Board of Minerals and Environment issued Hyperion a Prevention of Significant Deterioration (PSD) air quality permit that in some cases is more stringent or equivalent to California's requirements. For example, the PSD permit issued by the board required the sulfur content of the refinery gas to be 25 parts per million by volume or less. Whereas, California requires the sulfur content to be 40 parts per million by volume or less. Another example is the PSD permit issued by the board established nitrogen oxide limits for large process heaters and small process heaters of 0.006 and 0.025 pounds per million British Thermal Units of heat input, respectively. Whereas, California established nitrogen oxide limits ranging from 0.03 to 0.033 pounds per million British Thermal Units of heat input.
- 12. Will Benzene be regulated by the Prevention of Significant Deterioration Program?** Benzene is one of several compounds that are classified as volatile organic compounds. In the presence of sunlight, volatile organic compounds react with other pollutants in the atmosphere to form ozone. Ozone is one of the National Ambient Air Quality Standards regulated as discussed in question #6. The Prevention of Significant Deterioration Program regulates volatile organic compounds and the PSD permit issued by the board required Best Available Control Technology be installed to control volatile organic compound emissions.–
- As discussed in question #4, DENR is monitoring for air toxics, which includes benzene.
- 13. Where will the records for Hyperion be maintained?** The reports and associated records required under the environmental permits will be located at DENR's offices in the Joe Foss Building, 523 East Capitol Avenue, in Pierre and are available to the public during normal business hours. Other records that Hyperion must maintain but not report will be stored on-site and reviewed by state inspectors to ensure Hyperion is maintaining the required records and is in compliance with its environmental permits.
- 14. What are the state civil and criminal penalty authorities for violations of state environmental requirements?** Civil penalty authorities provided by the state legislature include up to \$10,000 per day of violation for air quality, surface water, ground water, solid waste, hazardous waste, etc. Criminal penalty authority under the air pollution and water pollution control programs is up to \$10,000 per day and is considered a Class 1 misdemeanor. Criminal penalty authority under the hazardous waste program is \$10,000 per day and is considered a Class 4 felony.

15. There have been rumors that Hyperion will sell the site after it is permitted and some other operation would be constructed instead, such as a landfill. Is that possible under DENR permits? No! At this time, Hyperion has submitted an air quality permit application to construct and operate a petroleum refinery. The permits would be specific to an oil refinery and would not allow construction of a landfill. If the property were sold and the new owner wanted to build a landfill at this site, the new owners would need any appropriate local approvals plus all necessary environmental permits from the state before it could be constructed.

16. Does the state have any environmental requirements for spills that may occur at the energy center? Yes. State law requires the responsible party to clean up any spill that may occur. According to both state and federal law, if a spill occurs at the energy center, Hyperion is responsible for the cleanup. Should a spill occur, DENR's first response will be to direct Hyperion to immediately respond and clean it up to meet state standards. DENR has rules in place specifying state cleanup standards.

Should Hyperion refuse to act immediately, DENR has the ability to use the state Regulated Substance Response Fund to immediately respond, assess and contain the spill. If it appears it will take more resources than what is available in the Regulated Substance Response Fund or if the size and extent dictates more resources are necessary, DENR can immediately enlist the help of the U.S. Coast Guard and the U.S. Environmental Protection Agency to use federal funding (described below) to remediate the spill. Upon remediation of the spill, all state and federal agencies will likely pursue cost recovery from the responsible party.

In response to the concern that an oil or petroleum spill could occur and the responsible party could possibly refuse to clean up their mess, Congress created the Oil Spill Liability Trust Fund in 1986 and its use was authorized by the signing of the Oil Pollution Act in 1990. The fund, managed by the U.S. Coast Guard, is established as a funding source to pay for cleanup costs and damages resulting from oil spills that reach or threaten navigable waters of the United States. The U.S. Environmental Protection Agency also has the ability to use this fund and actually expended about \$4.5 million from the fund cleaning up a coal tar spill in the Big Sioux River in the early 1990s.

The Oil Pollution Act requires the responsible party to take immediate action to clean up a spill. However, if the responsible party fails to take action, the federal government is able to dispatch a federal on-scene coordinator, which has full authority to put in place whatever cleanup actions are necessary to address the spill and use monies from the trust fund to pay for the cleanup.

The primary source of income for the trust fund is a 5-cents-per-barrel tax on imported and domestic oil. The tax applies to crude oil received at a United States refinery and to petroleum products entered into the United States for consumption, use, or warehousing. The tax also applies to other domestic crude oil used in, or exported from, the United States. The estimated fund balance at the end of 2007 is \$825 million. The fund is expected to grow to more than \$2 billion by 2014.

To get more information on all the state environmental programs in South Dakota, please visit DENR's website at <http://denr.sd.gov/>.