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Contesting the Hyperion Energy Center's Application for an Air Pollution Permit - A Narrative Summary

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CONTESTING THE HYPERION ENERGY CENTER'S APPLICATION FOR AN AIR POLLUTION PERMIT -- A NARRATIVE SUMMARY.

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I. INTRODUCTION: THE ANNOUNCEMENT

In June of 2007, during an otherwise routine meeting of regional governors in Sioux City, Iowa, information surfaced of a proposed project which until then had been only the stuff of rumors: A Texas company meant to construct a 400,000 barrel a day oil refinery and power plant on rural farmland in Union County, South Dakota, just north of Sioux City, Iowa. Promising (but not committing) to create 1,800 permanent jobs, 4,500 jobs during construction, and converting at least 3,292 acres of farmland to industrial use, the proposal was breathtaking by the standards of rural towns and cities which rarely experience non-agricultural investment.

According to the spokesperson for Hyperion at the time, the project “will be a showplace, not only for the Siouxland area but for the entire United States.” In a news report published by the *Sioux City Journal*, Hyperion representatives “repeatedly emphasized that Texas-based Hyperion is committed to building the nation’s most environmentally friendly energy center, with world-class technology and equipment that eventually will become the energy standard.”

A refinery project of this scale meant change for the people on the land, in surrounding communities, and the region. For many it represented hope for fresh economic opportunity. For others, it foretold an end to farming careers, or to rural lifestyles. Some thought of the possible health effects of air pollutants. For everyone, the announcement left most questions and concerns unanswered.

The capacity of the proposed refinery also had implications for domestic and international energy economies; investment of this scale can find economic justification only within the larger parameters of world energy markets and public energy and climate policy. In sum, it was a big deal.

In the end, the refinery was not constructed, the land purchase options lapsed, and the landowners in Union County returned to the business of growing corn and soybeans. The project failed because the world energy economy

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changed. But the events that followed the startling announcement back in 2007 are instructive. What follows is an attempt to summarize one portion those events.

II. THE SEARCH FOR RELIABLE INFORMATION

The announcement by project promoters predictably described the proposed refinery and power plant in glowing, but ever-so-general, terms. Words and phrases such as “green,” “state-of-the-art,” “world class,” “carbon neutral,” and “clean energy,” were sprinkled throughout although the emphasis remained on jobs and the economic engine that a \$10 billion industrial project offered the regional economy.

For residents, landowners, municipalities and businesses located near the proposed site, and therefore most likely to be affected, details proved elusive. The public was not provided with a reliable site plan, rail and truck access routes were not identified, nor were plans for drainage and related surface and groundwater hydrology. The need to dispose of toxic, hazardous and conventional waste went un-mentioned. Plans for expected conversion and use of adjacent farm lands were undisclosed. It was apparent to all that the South Dakota Governor’s office was working closely with project promoters, but no hard information was forthcoming from that office. This lack of information created uncertainty, which led to division within the community concerning the desirability of the refinery project.

III. EMERGENCE OF CONCERNED CITIZENS IN UNION COUNTY

This quest for detailed information resulted in still more unanswered questions, and finally the emergence of informal groups of concerned citizens. Because information from project promoters was provided only by hired public relations firms, a lack of trust also emerged.

As often occurs in cases such as this, the formation of local groups of concerned citizens also led to the emergence of individual leaders whose energy, knowledge and persistence drove the events which followed.

IV. LOCAL CITIZENS ORGANIZATION AND THE “NIMBY” ISSUE

Two local groups finally provided a fulcrum for expressing local concerns - Citizens Opposed to Oil Pollution (COOP) and Save Union County. Although legally separate, these two groups usually worked in tandem.

In situations of the kind presented by Hyperion it is inevitable that local citizens who question a proposed change or development are accused of opposing a good and necessary thing solely to protect their own most personal interests. This is now referred to by the shorthand “Not In My Back Yard” or NIMBY. It is a complicated thing. In general, each citizen is obliged to accept community change when it serves a larger public interest, but is a citizen required to sit silently when faced with change that he or she considers inconsistent with the public interest? Does the citizen have a meaningful voice in defining the public interest? How can that voice be heard?

NIMBY cases tend to break into several categories. In one are facilities that pose a high risk of market failure, such as a hazardous waste disposal site, or a nuclear facility. They are projects which are likely to fail in the long-term, leaving locally communities to live with the burden of environmental pollution and economic costs. Such “Locally Undesirable Land Uses” (LULUs) raise the sharpest local opposition. In contrast are facilities that involve a high level of economic investment in a recognized form of enterprise, but confront the community with a lurching change. The Hyperion refinery proposal can fit into either category, depending upon whom one speaks with.

In any case, the first-level siting decision is almost always delegated to state or local government, usually in the form of traditional county or city zoning.

IV. LOCAL ZONING PROCESS

South Dakota law delegates regulation of land uses, including changes in land use, to county and city governments. The tool employed is “zoning,” a legal process in which the local government adopts a guiding document known as a “comprehensive plan,” and then implements the plan by placing all properties in designated use zones, such as “residential,” “commercial,” “industrial,” and “agricultural.” On a day-to-day basis, zoning is a useful tool which helps to avoid conflicts among landowners, reduce the incidence of nuisances and allow communities to guide their growth in the way they prefer.

Hyperion’s plan required the acquisition of a large tract of open agricultural land and conversion to one of the most intensive industrial activities known -- oil refining and power production combined. At the time of the announcement, the land involved was zoned “agricultural,” and that zone designation would have to be changed to some sort of “industrial” designation through the public processes

required by Union County's zoning laws. That process got underway, and was marked with contentious public hearings and meetings. Ultimately, the County Commission adopted the necessary changes which were referred to the voters of Union County in a special election, the result of which favored the proposed land use change.

Those opposed to the project inevitably felt that the vote was unfair. They argued that the population of Union County is concentrated in Beresford (at the extreme north of the County) and Dakota Dunes (at the extreme south) whereas the people most affected by the project and living closest to the site, were in the middle. In addition, residents of Vermillion could point-out that they lived closer to the project than either Beresford or Dakota Dunes, but could not participate because they were in Clay County. In contrast, proponents of the project could rightly argue that the zoning change had been carried out through a fair, public process, according to law, ratified by a democratic vote.²

V. LEADERSHIP FROM REGIONAL AND NATIONAL PUBLIC INTEREST ORGANIZATIONS: THE SIERRA CLUB

The Sierra Club is a national membership organization founded in 1892 under the leadership of John Muir, the well-known writer, explorer and conservationist. The Club's original mission focused upon protection of public lands such as Yosemite and expanded gradually across a century to include a broad leadership role on environmental issues. Its stated mission today is:

To explore, enjoy, and protect wild places on the earth.

To practice and promote the responsible use of the earth's ecosystem and resources.

To educate and enlist humanity to protect and restore the quality of the natural and human environment, and to use all lawful means to carry-out these objectives.

This general mission had, at the turn of this new century, led the Sierra Club to directly engage the issues associated with coal, oil and climate change. The club's "Resilient Habitats" policy states that "[c]limate change is the largest threat that our natural heritage has ever faced. We must now actively work to

² The citizen groups did pursue an unsuccessful legal challenge in state courts, arguing that the Union County Commission failed to follow proper procedures. See, *Cable v. Union County Bd of County Comm'rs*, 769 N.W.2d 817, 2009 S.D. 59(2009)

create resilient habitats where plants, animals, and people are able to survive and thrive on a warmer planet.”

The Club’s “Beyond Oil” policy imagines “a world with clean, abundant, affordable energy; one where climate disruption is a fading threat and American soldiers are never again deployed to defend oil fields. One where innovative green industries provide good jobs and supply 100 percent of our energy needs. Imagine a healthier America with clean air and water, with pristine coasts and protected natural areas.”

A conventional “old energy” proposal such as Hyperion, particularly on such a scale, drew the attention of the national Sierra Club. Hyperion, by drawing tar sands oil from the Boreal Forest, would contribute to destruction of a large swath of habitat. By delivering oil it would help to hold the economy in its dependence on old energy.

As a very large membership organization, however, Sierra Club operates in a partially federated manner, through regional or state chapters, and smaller subsets known as chapter groups.

A South Dakota Sierra Club chapter has existed for decades, providing a particularly skillful voice in urging environmental protections in the Black Hills region, including the national forest and parks. Additionally, a Living River Group, based in Vermillion, enjoyed a long and successful history protecting and providing a voice for the natural Missouri River as it passes through southeastern South Dakota.

As concern with Hyperion grew, all three levels of the Sierra Club stepped forward. The critical moment occurred when the Sierra Club’s Environmental Law Program in San Francisco agreed to provide financial support for engaging expert testimony for the permitting process and possible litigation. The Environmental Law Program in Sierra Club exists to develop and implement a practical grassroots strategy for advancing Sierra Club’s goals.

VI. THE DECISION TO PARTICIPATE IN THE PERMITTING DECISIONS – CONCERN OVER SOUTH DAKOTA’S “RACE TO THE BOTTOM.”

The Union County zoning permit made local permission to commence construction expressly contingent “on Hyperion securing all necessary federal and

state permits and licenses.” Foremost among these various permits is the air pollution permit, which is, explicitly, a *preconstruction* requirement. Citizens of all stripe had to ask whether they should participate in the air pollution permit process. After all, aren’t there uniform national air pollution standards which must apply to the facility? Can’t we rely on the South Dakota environmental regulators to protect us? Doesn’t the cost of participation preclude involvement?

Implicit in this decision to participate in the permitting process is a concern with what is referred to commonly as “*the race to the bottom*” -- the lowering of regulatory standards by states in order to keep or attract industry. The idea is that states will sacrifice their citizen’s preferred level of environmental protection in order to gain a competitive advantage in pursuing new investment. Although federal environmental statutes may contain uniform standards, the process contains many discretionary elements; there are literally hundreds of points in the process at which state regulators can “put their thumbs on the scale.”

There are several means by which citizens typically participate in environmental and other regulatory processes. State and federal rules usually provide that the public must be provided an opportunity to speak-out in a scheduled public forum. But speaking at a public forum is just that -- a one-way statement, without benefit of questions, examination of facts, and appeal. The alternative is far more challenging, expensive and demanding -- intervening in the permitting process as a legal party to the case, with full-right to gather and scrutinize evidence, participate in legal proceedings, put-in evidence, cross-examine witnesses and appeal to the courts. By participating in the process as a legal party citizens can be present to pursue a fair and open consideration of potential environmental, social and economic impacts. Local citizens were confronted with this difficult choice in the Hyperion matter.

VII. THE REQUIRED PERMITS

Although this story focuses on the air pollution permit, a project such as Hyperion – refining 400,000 barrels per day of tar sands while simultaneously generating energy -- requires other permits as well.. Some are obvious, such as permits for new rail spurs, new interstate exits to serve refinery activity and aviation obstruction and light limits. Those which directly implicate environmental and natural resources concerns include the following:

Water Use Permit: The Hyperion project would require a vast quantity of water, and the source would be the Missouri River, below Burbank. Thus, the facility would construct a large all-season pump in the River with a large

capacity pipe leading to the project site. All water use permits are subject to the state's prior appropriation system, and permits are issued by a Water Management Board.

Groundwater Discharge Permit. South Dakota state law requires permits prior to discharges into the ground water. Large industrial facilities often deliberately dispose of waste by direct injection into underground formations. Others simply lose waste by spillage into underground formations. Groundwater Discharge Permits are also within the jurisdiction of the state Water Management Board.

Surface Water Pollution Discharges. The release or discharge of pollutants into a surface water are subject the federal Clean Water Act (CWA), which parallels the Clean Air Act (CAA). The CWA establishes express limits on discharges from "point sources," (pipes) and also sets minimum ambient standards for surface waters. As with the CAA, enforcement and permitting is delegated to the states, and in South Dakota this is the responsibility of the Water Management Board. There has never been any doubt that Hyperion would generate large amounts of liquid waste, and the manner of discharge would be of fundamental importance.

CWA "Section 404" Permit. Projects which will discharge fill material into surface waters, drain or eliminate surface waters (such as wetlands) or otherwise change or manipulate public waterways, must have a 404 permit, issued by the Corps of Engineers. Hyperion would require one 404 permit for its water intake and pump structure on the Missouri River, and another for manipulation of surface waters, wetlands and natural drainage on the project site itself. The Section 404 process does involve preparation of an EIS and intersects with the requirements of the federal Endangered Species Act.

On-Site Waste Storage Permits. A project of Hyperion's size generates waste in large quantities and becomes, effectively, a free-standing landfill.

Toxic and Hazardous Waste Disposal. Both federal and state laws require that wastes which are categorized as either toxic or hazardous meet specific disposal requirements.

VIII. INFORMATION DISCLOSURE PRIOR TO CONSTRUCTION: THE QUEST FOR AN ENVIRONMENTAL IMPACT STATEMENT ON HYPERION.

During a post-*Silent Spring*, late 1960s spike in popular attention to problems of environmental hazard, both Congress and the President hastily sought some way to respond. "The 1970s must be the years that America pays its debts to the past by reclaiming the purity of its air, its water, and our living environment. It

is literally now or never,” said President Nixon at the time. Numerous Congressional hearings were held on the subject. One of the common observations of citizens in those hearings was that, while engineers who design large projects such as dams, irrigation systems and industrial facilities are admirably competent at achieving the *primary* purpose of their undertakings, they almost universally do so in a manner which ignores the unanticipated *secondary* impacts. Thus, engineers might design a dam on the Missouri River or an interstate irrigation system on the Columbia which work well as dams and irrigation systems, but the designers typically ignore such things as harm to adjacent communities, elimination of ecosystems, harmful health resulting from pollutants, destruction of entire species of fishes and birds, and similar impacts. The point was made repeatedly that because environmental values such as clean air and water, healthy ecosystems, and abundant natural flora and fauna are rarely given economic value in the narrow world of the marketplace, they are ignored when important decisions affecting them are made.

The result was the federal National Environmental Policy Act [NEPA] P.L. 91-190(1970), Section 102(2) of which reads as follows:

(2) all agencies of the federal government shall---

(A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man’s environment;

(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by Title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations.

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on ---

(i) the environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

NEPA was a new type of regulatory statute; a broad stop-and-think, disclose-to-the-public, administrative law. It applies across the board to all federal agencies, requiring that they contemplate the context and consequences of their actions before acting. The requirement is documented formal consideration of negatives and alternatives as well as benefits before acting. If NEPA seems like good common sense, its requirements have been resisted and combatted constantly by non-environmental interests.

On the positive side the fundamental logic of the requirement has spread to many states and into many international legal systems.

The relevance of NEPA to the Hyperion case begins with the fact that NEPA is a requirement placed on *federal* decision-makers. As we have seen, Hyperion is subject to some federal permits that will require a NEPA 102(2) environmental impact statement. However, those permits will be applied for *after* the state of South Dakota has acted on the air pollution permit, and that permit is the keystone pre-construction hurdle for Hyperion and its presumed financiers.

Thus, the citizen groups concerned with the potential environmental and social impacts of the proposed tar sands refinery had to consider whether it is possible to get a *state-level* EIS as part of the air pollution permit proceedings.

As it happens, there is a basis for requesting a comprehensive EIS under South Dakota state law. After the enactment of the federal NEPA, the South Dakota legislature enacted a state version titled South Dakota Environmental Policy Act, (S.D.C.L. Sec. 34A). The South Dakota "little NEPA" originally mandated an EIS prior to any state action that would have a "significant effect on the environment." In subsequent legislative sessions, opponents of the state NEPA law modified the language, however, so that rather than *requiring* an EIS, an EIS is *discretionary* with the action agency.

In November of 2008, Save Union County, Citizens Opposed to Oil Pollution and the Sierra Club wrote to the Secretary of S.D. Department of Environment and Natural Resources asking that his department exercise its discretion and require an EIS for the proposed Hyperion tar sands refinery. The thrust of the argument was: “if not in this case, when?”

The argument was that the Hyperion, if built, will be by far the largest refinery and electric generating plant ever built in the state, and one of the largest in the U.S. As planned Hyperion would refine 400,000 barrels per day and support a 222 MW integrated gasification combined cycle power plant. The pollutants which it will emit include:

19 million tons per year (tpy) of CO₂.

1,999 tpy CO

733 tpy of nitrogen oxides

863 tpy SO₂

1,046 tpy of harmful fine particulates

The argument went well beyond the air pollution impacts. The project would adversely affect neighboring waters due to the high level of water consumption and wastewater discharges created. Large amounts of other wastes, including both toxic and hazardous wastes would be created and require disposal, either on or off site. The proposed project site is near a significant tributary (Brule Creek) of the Big Sioux River, which already carries a heavy pollution load, causing it to be out-of-compliance with state and federal water quality standards. The Big Sioux and its tributaries have been identified by wildlife agencies as critical habitat of fish and plant species listed under the Endangered Species Act.

The argument also encompassed potential impacts on existing rural communities, which would be changed forever by the proposed vast undertaking.

The citizen’s appeal to the D.E.N.R. stated: “If there were ever a project in South Dakota requiring an environmental impact statement, this is it. Indeed, if D.E.N.R. will not require an EIS in this case, then it is difficult to imagine a situation where DENR would ever require one.”

Nonetheless, both D.E.N.R. and B.M.E. resolutely refused to consider a pre-project EIS. The citizens groups pushed this argument throughout, finally losing on it before the state supreme court. This brief paper is not the place to lay out the strained legal arguments relied upon to avoid the EIS, but it is important to understand that without an EIS the citizens were denied a public opportunity to identify and discuss the likely *secondary effects* of the proposed project, its effect

on natural resources, the environment, on surrounding society. In a world faced with shortages of natural resources and a climate changing because of CO₂ releases, the absence of an EIS meant that the decision to proceed could ignore the *long-term* impacts as well as the *secondary* impacts.

IX. THE CLEAN AIR ACT: WHY IS IT FIRST?

The CAA permit is just one of many that is required of a project such as Hyperion, and a good argument can be made that all such permits should be processed simultaneously (following a comprehensive EIS.) But because of the effect of air pollution controls on project design, and the complexity of factors and information required in setting acceptable levels of air pollution, the CAA permit typically leads the way. In addition, the CAA permit is expressly a *pre-construction* permit.

X. THE CLEAN AIR ACT: HOW IT IS STRUCTURED

When the basic air pollution statute was adopted by Congress in the early 1970s, it had to deal with two very different regulated entities. One was the *existing* polluter (“source”) which was in place and, perhaps, not in either an economic or engineering position to make the changes necessary to reflect current state-of-the-art air pollution control technologies. The other was proposed *new* facilities which could be expected to be designed in a way that meets the most advanced, feasible, standards. In the most general sense, the first group was required to meet lower standards, and the second group was required to belly-up and do it right.

A. THE CLEAN AIR ACT IN GENERAL

Industrial nations have struggled to control air pollution for centuries. In the United States the basic federal statute governing air pollution is known as the Clean Air Act (CAA).

The CAA relies on two very different types of regulatory standards (ambient and technology-based) and two very different government roles (federal standard-setting and state implementation). The overriding goals are to clean dirty air to an acceptable level and to maintain high quality air where it still exists. Various approaches are required depending upon whether the polluting sources are mobile (cars, trucks, tractors) or stationary (refineries, power plants), whether sources are

located in clean-air or dirty air regions of the country, whether polluting sources are new or old, and whether technology exists to economically reduce pollution at the source. Special attention is also required when regulating pollutants that are immediately toxic or hazardous to human health. Underlining all parts of the CAA is the question whether and to what extent economics (cost) is a factor in setting standards.

At the center of the CAA are *National Ambient Air Quality Standards* (NAAQS) which are meant to protect public health by governing the quality of outdoor air. These standards protect public health, measured as maximum pollutant concentrations deemed to be safe for exposure over various time periods; harm is the threshold of regulation. The U.S. Environmental Protection Agency (EPA) must set *primary* NAAQS to protect human health with an adequate margin of safety; *secondary* standards are designed to protect additional environmental values such as plant and animal life, property, and aesthetic sensibilities. Standards currently exist for six primary and secondary pollutants (known as “criteria pollutants”). They are: Carbon Monoxide (CO); Nitrogen Dioxide; Ozone (O3); Lead (Pb); Particulate (PM10); Particulate (PM2.5) and Sulfur Dioxide (SO2).

The first emphasis of the CAA is attainment and maintenance of these ambient standards. Because they do not specify limitations on actual sources, ambient standards cannot, standing alone, constitute an effective basis for air pollution control; they must be backed-up by enforceable measures limiting individual source emissions through end of the stack controls.

Technology-based uniform national emission standards specify the pollution reduction performance levels expected from particular categories of air pollution sources. There are four categories of these standards. First are technology-based standards for mobile vehicle sources. Second, the CAA requires nationally uniform *New Source Performance Standards* (NSPS) for various categories of stationary sources. NSPS require the application of the best system of emission reduction that, taking into account such factors as *cost, public health and harm to the environment*, the federal EPA determines has been adequately demonstrated. (Because these standards apply to a new oil refinery such as that proposed by Hyperion, we will return to the category in more detail).

Third, the CAA requires national emission standards for hazardous air pollutants (NESHAPS). And, fourth, the law requires that *existing* sources in

regions that have not yet achieved NAAQS install a minimum of “reasonably available control technology.”

The actual permitting and enforcement of CAA pollution standards is in most cases delegated to the states through EPA-approved *State Implementation Plans* (SIPs). These SIPs must contain “enforceable emission limitations and other control measures, means, or techniques . . . as may be necessary or appropriate” to meet and maintain the NAAQS. Once approved by EPA, SIPs take effect as federal law. The choice of emission limitations for *existing* air pollution sources is left to the states as long as the combination of measures selected are sufficient to achieve compliance with the NAAQS. As to *new* sources, the more demanding uniform, national, technology-based emission standards are applied.

B. THE “PSD” PROGRAM FOR CLEAN AIR (“ATTAINMENT”) REGIONS

From the early days of the CAA down to the present, this question is faced: Whether air quality in areas of the nation that already enjoy air cleaner than that required by the NAAQS should be allowed to deteriorate to the ambient standards. The CAA was finally interpreted to mean that EPA has a nondiscretionary duty to adopt measures that will improve air quality *and* prevent all but non-significant deterioration of existing high air quality levels. The result is the Prevention of Significant Deterioration (PSD) program, which is applicable to the Hyperion refinery proposal.

The PSD program pursues multiple goals. The first is to achieve health-based protections against known or suspected adverse effects of ambient concentrations of the criteria pollutants. The PSD program also seeks to provide special protection to scenic vistas in pristine areas of the West.

Very important, the PSD program responds to fears that, absent protection of air quality *better* than that required by the NAAQS, states with clean air will compete for industrial expansion using the ability and willingness to degrade air quality as a bargaining chip. Thus, the PSD program equalizes the burden of air pollution controls among more and less industrialized areas. It is a direct response to the “race to the bottom” issue.

The main substantive provision in the PSD program is found in CAA Section 165(a), which establishes permitting requirements for “major emitting facilities” located in attainment areas. The Section provides that “[n]o major

emitting facility . . . may be constructed in any area in which this part applies unless” the facility obtains a PSD permit. To obtain a PSD permit, a covered source must, among other things, install the “*best available control technology [BACT]*” for *each* pollutant subject to regulation under the CAA regardless of whether that pollutant is a NAAQS pollutant. The PSD program is a *preconstruction* review and permitting program.

BACT is determined on a case-by-case basis *taking into account the cost effectiveness of the control and energy and environmental impacts*. EPA has developed a “top-down” approach to BACT review, which involves a decision process that includes: (1) identification of all available control technologies; (2) elimination of technically infeasible actions; (3) ranking of remaining options by control and cost-effectiveness; and, (4) selection of BACT. BACT review is performed for each pollutant and each emission source.

How is “significant deterioration” to be defined in this case-by-case analysis? By setting maximum allowable increases (“increments”) over *baseline concentrations* for each pollutant. Increments are usually defined for both a long-term (annual) average concentration and maximum concentrations over short periods of time.

There are three general categories of “increments.” Class I increments permit only minor air quality deterioration and are generally confined to international parks, national wilderness areas that exceed 5,000 acres, national memorial parks that exceed 5,000 acres, and national parks that exceed 6,000 acres in size. All others are initially placed in Class II, which permit moderate deterioration. Class III increments permit the most deterioration provided NAAQS are not violated for any pollutant. Increment guidelines are specified in federal regulations.

To determine the projected impact of a proposed major emitting facility it is necessary to first gauge the air quality in the affected PSD area. Without a reliable baseline, increments cannot be gauged. The increments for sulfur oxide and particulates are specified in the CAA (Sec, 163) At least one year of preconstruction air quality monitoring is required in order to establish baseline data.

Procedure and detail for all of this, including opportunity for public comment and participation is set-out in an individual state’s SIP. EPA regulations establish the absolute minimum and as in South Dakota are adopted into the state

SIPs by reference to the *Code of Federal Regulations*, where the SIP of each state is also published. The federal CAA intends that individual states will aspire to *higher* levels of environmental protection but this rarely occurs, and the states hold to the minima.

XI. CAA PERMITS EXTENDED TO INCLUDE BACT FOR GREENHOUSE GASES

At about the time that Hyperion was developing its plans, issues of climate change and global warming resulting from human-generated greenhouse gases (GHGs) were gradually introduced to the public policy and regulatory agenda. Most relevant to the Hyperion case was whether the refinery would be required to limit GHG emissions as part of the CAA permit.

The keystone to an answer is found in a 2007 decision of the Supreme Court of the United States, *Massachusetts v. Environmental Protection Agency*, 549 U.S. 492. A group of states, local governments and private organizations sued EPA alleging that the agency had abdicated its CAA duties to regulate GHGs, including CO₂. (For the record, the State of South Dakota entered the lawsuit on the side of EPA, arguing that GHGs should *not* be regulated). The decision of the Court was against EPA and in favor of regulating GHGs under the CAA. In the words of the Court:

On the merits, the first question is whether . . . the Clean Air Act authorizes EPA to regulate greenhouse gas emissions from new motor vehicles in the event that it forms a “judgment” that such emissions contribute to climate change. We have little trouble concluding that it does. . . . The Clean Air Act’s sweeping definitions of “air pollutant” includes “any air pollution agent or combination of such agents, including *any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air. . . .” On its face, the definition embraces all airborne compounds of whatever stripe, and underscores that intent through the repeated use of the word “any.” Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt “physical [and] chemical . . . substances[s] which [are] emitted into . . . the ambient air.” The statute is unambiguous.

In sum, the Court found that EPA was required to determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the

science is too uncertain to make a reasoned decision. The Court concluded that GHGs “unambiguously” may be regulated as an air pollutant under the CAA.

In the words of the Supreme Court, “EPA can avoid taking further action only if it determines that [GHGs] do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise the discretion to determine whether they do.” 549 U.S. at 533. The Court instructed EPA to determine “whether sufficient information exists to make an endangerment finding.” 549 U.S. at 534.

EPA responded by issuing a finding that GHGs contribute to air pollution that may endanger public health or welfare. In what is now known as the “Endangerment Finding,” EPA found that the current and projected atmosphere concentrations of GHGs threatened the public health of current and future generations. 74 Fed. Reg. 66,496 (Dec. 7, 2009). The finding uses a group of six long-lived and directly-emitted gases as the object of the rule. They are: Carbon dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulfur hexafluoride (SF₆). Some of these GHGs have a higher global warming potential than others. To address these differences, the international standard practice is to express GHGs in carbon dioxide equivalents (CO₂e). Under this rule, EPA is using CO₂e as the metric for determining whether sources are covered for permitting programs. Total GHG emissions will be calculated by combining the CO₂e emissions of all of the six constituent GHGs.

In the parallel “Cause or Contribute Finding,” EPA found that the combined emissions of the several GHGs from new motor vehicles and engines contribute to the GHG pollution which threatens public health and welfare. 74 Fed. Reg. 66,498 (Dec. 7, 2009). Under EPA’s long-standing interpretation of the CAA, the second finding automatically triggered regulation of stationary sources which emit GHGs. The PSD program requires state-issued construction permits for specific *categories*, such as refineries, if they have the potential to emit over 100 tons per year (tpy) of “any air pollutant.” All other stationary sources are subject to PSD permitting if they have the potential to emit over 250 tpy of “any air pollutant.” In addition, Title V requires state-issued operating permits for stationary sources that have the potential to emit at least 100 tpy of “any air pollutant.” EPA has long interpreted the phrase “any air pollutant” in these situations to mean any air pollutant that is regulated under the CAA. Therefore, EPA concluded that major stationary sources of GHGs would be subject to PSD and Title V regulation on January 2, 2011, the date on which GHGs first became regulated.

The EPA's regulatory approach was challenged unsuccessfully in federal courts. (Here, again, the State of South Dakota litigated vigorously *in opposition* to the regulation of GHGs, *arguing that science has yet to establish that GHGs represent a threat.*)

Having established *when* GHG emission limits apply to stationary sources, EPA next had to decide *how* to apply the rule within the PSD and Title V programs. In May 2010, the so-called "Tailoring Rule" became final, and it limited the application of permitting requirements, at first, to only larger sources. (The Tailoring Rule was *also* attacked in court by the State of South Dakota, also unsuccessfully).

Next, EPA issued a "Guidance Document," to assist applicants, which are now required to establish BACT in PSD and Title V applications. The "BACT document" does not require the installation of specific technology, but instead sets-out a process for developing BACT-qualifying technology. The document states that in most cases the 5-Step BACT selection process will likely lead to *energy efficiency measures*, defined to mean a technology which burns less fuel on a per-unit-of-output basis. The assumption is that BACT on energy efficiency is BACT for GHGs.

Finally, EPA issues regulations requiring the reporting of GHG emission. While these requirements apply to only the larger emitters, and, on account of the variety of emitters involved, are complicated, the process of cataloging GHG emissions is underway.

XIII. PARTICIPATION AS A PARTY POSED CHALLENGES

As the detailed application submitted by Hyperion to D.E.N.R. made all too apparent, full participation in the CAA permitting process requires a sophisticated knowledge of air pollution control technologies and a capacity to critique them in the context of modern industrial and electronic systems. These requirements exceed the capacity of citizen groups and individual legal counsel. Just as it was essential for Hyperion to employ scientific and technical experts in preparing its CAA application, and as DENR employed trained engineers to process the application, so participating citizens also must rely on independent and fully qualified experts for guidance. Several examples suggest the nature of the challenge.

. The U.S. EPA and state regulations stipulate that all estimates of ambient concentrations of criteria pollutants must be based upon appropriate air quality computer models. The models and the proper methods of usage are described in a lengthy “Guideline for Air Quality Models” published in a long Appendix to the EPA regulations. These Guidelines are intended to reflect the latest peer-reviewed science and the best recommendations of recognized associations of relevant scientists and engineers. The generally-recognized computer model for tracking pollutants and pollutant plumes in the atmosphere is known as AERMOD, described by EPA as a “best state-of-the-practice Gaussian plume dispersion model” to be used in “assessment of plume impacts from stationary sources.” Proper analysis requires scrutiny of the data collected for entry into the AERMOD model as well as control of the program as it is applied to a specific PSD application. Ultimately the result must lead the decision-maker through the 5-step, top-down, BACT selection process. That this is all to be applied to a vast refinery and power point proposal made the challenge daunting in the extreme.

The selection of data for the computer models played a central role in the Hyperion proceedings. There are two meteorological monitoring stations in the region of the proposed Hyperion location. One is in Sioux City, Iowa, south of the location, along the Missouri River valley. The other is further away, in Sioux Falls. DENR staff elected to rely on the Sioux Falls data rather than that from Sioux City, and this decision was hotly contested. The amount of pollutants already in the air in Sioux City is considerably greater than that of Sioux Falls, largely because of a coal-burning power plant and other industrial facilities located there. In addition, citizens argued that the prevailing winds at the Hyperion location were from the south, and channeled up the valley toward the Hyperion location. By choosing the Sioux Falls data, DENR assured that Hyperion would enjoy much larger increments than would have been the case had Sioux City data been employed in the modeling..

Apart from the scientific and technical analysis required, participation also posed problems arising from the magnitude of the Hyperion proposal. The PSD-CAA application for the combined refinery and power plant identified at least 31 major emitting categories for which BACT is required. Analysis of each of these categories requires expertise in a range of technical fields and also requires careful review of a mountain of documents, encompassing such sources as EPA Guidance Documents, EPA regulations, regional geologic databases, regional meteorological databases, published research from diverse fields, and oil industry publications. Simply finding computer capacity, office and staff to carry-on such a project is

beyond most local groups, including individual volunteer legal counsel and scientists.

XIV. ROBERT L. GRAHAM, GABRIELLE SIGEL, ALLISON TORRANCE, and JENNER & BLOCK

In this world, there are still heroes.

Just when it appeared that COOP, Save Union County and Sierra Club would be unable to participate formally in the CAA/PSD permit proceedings, and, in effect, be denied any meaningful voice, a call was received from Robert L. Graham, a partner in the Chicago-based law firm of Jenner & Block [www.jenner.com] in which he volunteered the legal services of his skilled litigation team on behalf of the local groups and the Sierra Club. Graham recognized that the Hyperion case would be a standard-setting matter not only for air pollution generated by this new kind of oil from the tar sands of Canada, but also for the regulation of climate changing greenhouse gases. He was concerned that without extra assistance, citizens might go un-represented in the case. However, Graham was also simply concerned for the need to take all possible steps to protect the human and natural environment.

` *In this world there are still heroes.*

Graham and his associates Gabrielle Sigel, Allison Torrance and Jennifer Cassel jumped-in, and during the years that followed provided the same quality of legal representation to the local citizen groups that is usually available only to the largest corporations. Their dedication never flagged. Their representation required that they be present in Pierre in order to participate in more than four full weeks of intensely contested hearings, prepare and argue an appeal to the Hughes County trial court, prepare and argue an appeal before the state supreme court, and also prepare a detailed appeal for relief to the regional office of the federal EPA. Their skilled office assistants, two of whom traveled with the litigation team to Pierre, maintained and organized (with amazing computer-based competence) millions of pages of documents as well as computer models.

Local volunteer members of the legal team were Sam Khoorosi, a skilled and public-spirited young Sioux Falls attorney, and John Davidson. Ed Cable, Dr. James Heisinger, Dr. Dean Spader, and Dr. Jerry Wilson volunteered their hundreds of hours in support of the legal team, as did many other citizens, But, it

could not have happened without that first call from Bob Graham at Jenner & Block.³

XV. PROCEDURE IS SUBSTANCE: D.E.N.R. AND B.M.E.: AGENCY STRUCTURE AND THE CAA PROCESS. “WHO REPRESENTS WHOM?” ROLE OF D.E.N.R. FIELD TECHNICIANS

South Dakota’s administrative structure for dealing with CAA permit applications can be confusing. The initial application is made to DENR’s administrative staff which is responsible for preparing and recommending a final permit. During this internal process the staff receives scientific and technical advice from the South Dakota Geological Survey, a department within DENR, but based on the USD campus in Vermillion. DENR staff receives legal advice from lawyers in the South Dakota Attorney General’s office.

When DENR’s staff proposes a final CAA permit, it is submitted for approval to the South Dakota Board of Minerals and Environment (BME). The BME receives administrative support from DENR and legal support from the S.D. Attorney General’s office, but is, nonetheless, expected to operate as an entirely independent decision-maker. The DENR internet site (which is also the internet site for BME) describes BME this way:

The [BME] is a quasi-legislative and quasi-judicial citizen’s board consisting of nine members appointed by the Governor. Appointments are for four year terms and not all of the members can be from the same political party. Various public interests represented by the board members include attorneys, business persons, engineers, agriculture, and regulated industries. As required by the federal Clean Air Act, a majority of the members cannot represent a business or industry which is regulated by the board.

The specific procedures to be followed during a CAA-PSD permit are laid-out in federal regulations. (40 CFR Pt. 124 and 51.166(q)). The first required administrative step is a formal determination by DENR staff that the CAA-PSD application is complete. Within one year of that date the DENR staff must prepare and make available to the public a draft permit. Among other things, public notice must specify the “degree of increment consumption” (increased pollution over

³ Here, please go to www.sierraclub.org/environmentallaw/heroes/hyperion/asp where you can learn more about Graham, Sigel and Torrance. Students of environmental protection need models; here are three.

baseline amounts). The USEPA regional office in Denver must also be notified, and it will usually carry-out its own review of the proposed permit, followed by recommendations as required. The public is provided an opportunity to comment in person or in writing. As part of its final determination on the permit, DENR staff must respond to public comments.

Finally, DENR staff recommends a final permit and submits it to the BME for final action at one of its regularly scheduled meetings in Pierre. At that stage, DENR staff and the applicant are proponents of the final draft and are expected to justify the permit in testimony before the BME

If, as was the situation with the Hyperion permit, third parties wish to participate in the hearing before the BME as legal parties, they must petition the BME to intervene as a party and initiate a *contested case*, stating in the petition their interest in the matter, and specifying the parts of the proposed final permit which they believe fails to comply with the CAA and the state SIP. The petition must contain a “statement alleging the relevant facts and issues known to the petitioner [Sierra Club and the local groups] upon which the contest or request to the BME is based,” as well as reference to the statutes, rules and court decisions which it believes supports its position.

From that point forward, a contested case proceeds much as does civil litigation before a court, with DENR and the applicant (Hyperion) provided an opportunity to respond in writing to the contested case petition, each party requesting pre-hearing documentation and testimony from the others, and so forth. Finally, a hearing before the full BME is convened, with each party putting in to evidence its testimony, all of which is subject to cross-examination (questioning) by the other parties and members of the BME.

When the hearing finally concludes, the BME invites the parties to submit their own proposed findings of fact and conclusions of law along with their suggestions for the final order. The BME then makes a decision with a majority carrying the side. The BME produces its own findings of fact, conclusions of law, and final order.

Because questions of *fact* are usually in dispute during a contested case hearing, the BME must employ some recognized guideline for determining these critical questions, and according to BME rule “that fact must be established by a preponderance of the evidence.”

XVI. PUBLIC HEARINGS IN ELK POINT

Rules of EPA and DENR require that prior to formal consideration of a proposed permit, the BME must hold a public hearing near the location of the proposed facility. As a result, for nearly two days, including evenings, the BME sat in the Elk Point High School auditorium and listened to individual members of the public.

The opinions expressed at these open and informal proceedings covered the full range. There were many who articulated the inviting prospects of economic growth and industrialization. Jobs were important, and relevant Sioux City unions made the case with credibility. Parents spoke of the hopes that their children would find work and be able to remain near home.

But the largest part of the hearing time was consumed by individuals expressing their concern with the project. Hour upon hour they spoke. Many had developed the most detailed research to support their concerns. Some who would lose their farming life spoke from that perspective. Some voices were poetic; some philosophical. Many found it difficult to speak before such a large and diverse audience, but did so nonetheless, often with eloquence and precision.⁴

The Jenner & Block team was present throughout, listening for issues that might become relevant in the formal contested-case hearings to follow.

XV. CITIZEN CONCERNS WITH HEC APPLICATION

As mentioned earlier, the proposed refinery and power plant contained at least thirty-one major points of air pollution emissions. In addition there were emissions generated by trains, trucks and associated traffic. Each of these emission sources was subject to BACT analysis. This narrative is not the place to describe each area of concern raised by citizens -- the detail is enormous and often expressed in arcane language. The complete record is maintained electronically by SD DENR, and available to researchers interested in greater detail.⁵

XVI. CONCLUSION

Modern technologies and economics magnify the scale of projects, particularly those associated with the extraction and development of natural resources. Although Hyperion was not constructed, it is inevitable that other large-scale projects will be proposed for rural areas. It is hoped that this summary will be useful as a starting point for citizens who are affected by such projects, or are concerned with the wise use and protection of our natural and human environment.

4. During the first lunch recess, members of the BME joined representatives of Hyperion for steak lunches at the nearby Whimp's restaurant in Burbank. They were observed by members of the public and when hearings resumed, citizens were quick to object to what they saw as the appearance of a conflict of interest. The BME is "quasi-judicial," meaning that it acts like a court of law. Judges are obliged to avoid even the appearance of a conflict of interest or favoritism and do not lunch with the parties who appear before them. Based on this "Whimp's Moment," many citizens developed a skepticism of the BME's claim of impartiality.

⁵ Many of the contested points were carried-on through judicial appeal, but without success. In re Prevention of Significant Deterioration (PSD) Air Quality Permit Application of Hyperion Energy Center, 826 N.W. 2d 649, 2013 S.D. 10 (2013)

APPENDIX: THE TAR SANDS FACTOR

The Hyperion application included national and international implication as a result of the source of the oil -- tar sands. The following excerpt from the February 2013 issue of *Scientific American* summarizes the issue:

“The remote northern corner of Alberta is home to the tar sands, a sprawling deposit of thick, heavy oil that is among the most greenhouse gas-intensive forms of petroleum to produce. In the past decade Canada has become the U.S.’s primary supplier of imported petroleum -- ahead of Saudi Arabia -- and more than half of it comes from this Florida-sized reserve, the only place in the world where oil is mined, not drilled. Should President Barack Obama sign off on construction of the Keystone XL pipeline this year, the flow of tar sands oil, known as bitumen, into the U.S. would increase.

Sourcing more oil from Canada achieves the politically desirable goal of making the U.S. less dependent on OPEC. But bitumen exacts a heavy toll on the environment. As compared with conventional Saudi oil, it emits twice as much greenhouse gas per barrel because of the resources needed to process it. And, although it is net-positive -- providing between 7 and 10 Btu (British thermal units) of energy for every 1 Btu put into the tar sands -- it is less so than conventional petroleum. Once it is mined, bitumen requires large amounts of gas-heated water to melt and separate it from the coarse grains of sand to which it is bound. At that point, the bitumen is still too tarry to flow, so it has to be chemically manipulated with heat and pressure to become yellowish crude oil, diesel, jet fuel or other typical hydrocarbon products. Or it can be diluted with light hydrocarbon liquids to become pitch-black “dilbit” (for “diluted bitumen”), capable of traveling via pipeline to the U.S.

Some environmental scientists see tapping the oil sands as a disastrous tipping point for global warming. In an analysis of how to restrain warming to an increase of two degrees Celsius or less above preindustrial levels, the International Energy Agency suggested that tar sands production should not exceed 3.3 million barrels a day. Yet approved tar sands production would surpass five million barrels a day -- a fact that NASA climatologist James Hansen calls “game over for climate change.”

Of course, the true challenge is reducing the use of all fossil fuels, not just oil. U.S. coal-fired power plants produce 10 times more carbon dioxide than Albertan tar sands. Even so, power plant emissions have begun to decline, while the Canadian Association of Petroleum Producers notes that CO₂ pollution from oil sands has risen 36 percent since 2007. As the U.S. weighs construction of the Keystone XL pipeline, the problem of tapping the oil sands is only getting stickier.”

