Hopes and Fears for NEPA: 
A Comparison of the Keystone XL Pipeline and Appalachian Mountaintop Removal Mining
Logan Axelson - Eva Birk - Ellie Bomstein
December 2, 2011

I. Introduction

“To declare national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation...”

-Preamble to the National Environmental Policy Act (1969)

The implications of the National Environmental Policy Act (1969) (NEPA) are widespread and myriad. The Programmatic Environmental Impact Statement of Mountaintop Removal Mining (MTM PEIS) and the Environmental Impact Statement of the Keystone XL Pipeline (Keystone EIS) provide a lens through which to view the strengths and weaknesses of NEPA. This analysis will compare these two EISs in three areas: 1) the use and misuse of the “Alternatives” section, 2) the narrowness of scope of the impact statements, and 3) the strategy used by each lead regulatory agency. Additionally, each section will analyze instances where one EIS process mobilized the power of NEPA in a much more effective way than the other, and why this was the case. This comparison will provide a critical framework with which to consider potential improvements to this landmark legislation.

The Projects

The Keystone XL Pipeline is a proposed 7 billion dollar, 1,700 mile underground pipeline which will connect the Hardisty oil sands in Alberta, Canada, to oil refineries across the central United States, and on the coast of the Gulf of Mexico. If approved, the
pipeline will cross through Alberta and Saskatchewan, Canada; and Montana, South Dakota, Nebraska, Kansas, Oklahoma and Texas, USA (O’Hanlon, 2011).

In 2008, TransCanada Keystone Pipeline LP filed for a presidential permit for the Pipeline, which is expected to carry an average of 700,000 barrels of crude oil per day to the United States (Keystone FEIS, ES-1). The U.S. Department of State was the lead agency on this EIS because the Pipeline will cross an international border. The DoS released the Final EIS on August 26, 2011 though the permit is still under review. The Department of State hopes to reach a decision on the permit in early 2013 (Department of State, 2011).

This analysis will also examine the Programmatic EIS of Mountaintop Removal Mining. Mountaintop removal mining is the process by which miners extract coal by removing surface rock and soil to reveal the coal seam. Mountaintop Removal Mining has been a widespread mining technique in the Appalachian region of the eastern United States since the mid-1980s (UCS, 2004). The process is illustrated in Figure 1.

Figure 1. A typical mountaintop removal process (EPA, 2011).
The MTM PEIS was the result of Bragg v. Robertson (also known as Bragg v. West Virginia Coal Association). In 1998, Patricia Bragg, who represented a coalition of environmental groups and private citizens, sued the West Virginia Division of Environmental Protection to cease and desist mountaintop removal mining (Environmental Law Institute, 2002). Though Bragg lost the case, the West Virginia Department of Environmental Protection, along with EPA, the Army Corps of Engineers, the U.S. Department of Interior’s Office of Surface Mining and Fish and Wildlife Service, agreed to undertake a Programmatic EIS of mountaintop removal mining. This PEIS was intended to study past impacts of mountaintop removal “to inform more environmentally sound decision-making for future permitting of mountaintop removal mining and valley fills” (MTM FPEIS, 1). The FPEIS was released in October, 2005 (MTM FPEIS).

II. Justifications for the Comparison

The Keystone XL and MTM EISs bear similarities that reveal essential characteristics of the regulatory framework established by NEPA and the other landmark environmental legislation of the late 1960s and early 1970s. While each project creates distinct environmental impacts, the use of the NEPA process in each case calls into question the ultimate utility of NEPA in effectively protecting the environment. As such, the similarities of these EISs present an opportunity to evaluate how best to translate the principles of environmental protection into a regulatory structure.

Substantive similarities between the Keystone XL and MTM EISs demonstrate the way in which they provide useful perspective on the NEPA process. Each EIS is notable for its considerable scale. The Keystone XL pipeline is to extend for 1,700 miles, will cross six
states and two provinces in two countries, and will have the capacity to pump 1.1 million barrels of crude oil per day. Construction requires excavation of the pipeline’s right of way, installation of the actual pipeline, and filling of the excavated earth. (Keystone EIS, 2011) The development potential along with the employment opportunities created by construction reveals the degree to which many are deeply committed to ensuring that the pipeline gets built.

Similarly, the MTM PEIS represents a critique of a large-scale, economically critical practice. The EIS reviews MTM over a geographic area of 12 million acres across four states. The preparers of the PEIS estimate that 28.5 billion tons of high-quality coal remains in the study area. Likewise, the socioeconomic significance of coal mining to the region raises the stakes of environmental review. EPA notes the importance of coal mining as a job producer, and as a generator of tax revenue. (MTM PEIS, 2005 at ES-2) In a region that has endured obstinate poverty and unemployment, the mining jobs that remain are prized and jealously protected. In other words, the outcome of the PEIS was of great concern to the people of the region.

The projects share similarities in scale and importance, but they also share an impetus that bears particular significance to a critique of the NEPA process: they have each been marketed as ways to preserve the energy autonomy of the United States. Coal, for instance, is responsible for roughly half of the electricity generated in the U.S. Virtually all coal burned in the United States is mined domestically. Similarly, the 1.1 million barrels of oil per day to be transported through the Keystone XL pipeline represent nearly 6% of the U.S.’s total oil consumption rate (CIA, 2011). Controlling the release of that much oil
domestically is appealing to policymakers because it would create a significant buffer against the vagaries of international resource politics.

For all of these reasons, the impacts of both the Keystone XL pipeline and continued MTM create a series of cumulative effects that fall outside the scope of either EIS. This is a challenge not anticipated in the NEPA statute. NEPA’s command to engage in environmental review is an excellent tool for measuring localized environmental impacts, and is backed up by serious statutory requirements. But NEPA does a markedly poor job at requiring policymakers to craft sensible policy on national and global issues like climate change. In both surveyed EISs, the projects seem to exist in a vacuum, oblivious to their influence on the most critical of environmental issues. Consequently, the routine vacillations of policymakers are not only tolerated, but also incentivized.

The analysis to follow will reveal fundamental regulatory gaps in the NEPA structure. While each EIS comports with the letter of the law, it is not certain that the ultimate result of either is a healthier environment. The selected critiques of the EISs’ scope, alternative visions, and regulatory schemes are intended to: 1) establish key elements of reform to NEPA, and 2) draw attention to moments of merit in the NEPA process that enabled certain stakeholders to organize meaningful action.

III. Comparison #1: Examination of Alternatives

NEPA requires that agencies present possible alternative actions to proposed projects in Environmental Impact Statements. The agencies must also give justification for the option they chose, and explain why it is preferable to the other alternatives. In the cases of Keystone XL EIS and Mountaintop Mining Programmatic EIS, consideration of the
alternatives elicited a large proportion of the public response. This response exemplifies
the importance of thorough and thoughtful alternatives in EISs. However, the public used
the alternatives presented in the Keystone EIS to catalyze real change, while the
alternatives presented in the MTM PEIS led only to widespread public dissatisfaction.

Effective Use of Alternatives to the Keystone XL Pipeline

The Keystone XL pipeline was hotly contested from its inception in 2008. Many
environmental groups were extremely vocal in their opposition, which appeared in news
articles, press releases and in droves in the comments section of the Final EIS. There were a
large number of comments concerned with water impacts, economic concerns and spill
response. However, the most publicized, and successful, public dissent came in response to
the proposed alternatives.

The Pipeline FEIS offered three alternatives to the project. First, the “No-Action”
alternative examines the impacts from not building the Pipeline at all. The State
Department quickly dismissed this alternative because “the demand for crude oil in the
Gulf Coast area is projected to increase and refinery runs are projected to grow over the
next 10 years, even under a low demand outlook” (Keystone FEIS, at ES-11). If Keystone
does not build the Pipeline, America will lose access to the crude oil resources that the DoS
expects consumers will need over the life of the project. They deemed the No-Action
Alternative untenable. Many environmental groups continue to support this alternative as
the presidential permit is pending.

The second set of alternatives is known as “System Alternatives.” These are
scenarios in which crude oil from the Hardisty oil fields could travel to the US via existing
pipelines, rail, marine tankers and trucks. This alternative would allow the oil to get to the
refineries without extensive new infrastructure. The State Department claimed this alternative to be inferior to constructing the Pipeline because it would “not meet the near-term need for heavy crude oil at Gulf Coast refineries” (Keystone FEIS, at ES-11). This option is somewhat limiting and received less public attention.

Figure 2. Map of Major Route Alternatives proposed for the Keystone XL Pipeline (Keystone FEIS, at ES-13).

The final, and arguably most important, sets of alternatives were the “Major Route Alternatives” (see Figure 2) and the “Route Variations and Minor Realignments.” The most successful group of protesters was concerned about the Pipeline’s path through the
ecologically sensitive Sand Hills region of northern Nebraska. The Sand Hills have a high water table and lie on top of the Ogallala Aquifer. This Aquifer supplies 20% of the irrigation water in the United States, and comprises 30% of all the ground water in the US (O'Hanlon, 2011).

Protesters from Nebraska were concerned about the potential for leaks and groundwater contamination that could be catastrophic in a region that relies so heavily on agriculture. These citizens, and thousands of others, held a protest against the Pipeline outside the White House on November 6, 2011. Though the reported number of protesters varies from five to twelve thousand, the protest was a linchpin in the State Department’s decision to consider rerouting the Pipeline to avoid the Sand Hills as proposed in the “Major Route Alternatives” section of the FEIS (Goldberg, 2011).

On November 10, 2011, the DoS issued Executive Order 13337 stating that, “the Department has determined it is necessary to examine in-depth alternative routes that would avoid the Sand Hills in Nebraska in order to move forward with a National Interest Determination for the Presidential Permit” (Department of State, 2011). This announcement was a major victory for Nebraskans. They were able to successfully use the alternatives in the EIS to potentially eliminate the risk of an environmental catastrophe.

In order to solidify their desire to protect their land and water resources, Nebraska lawmakers passed the Major Oil Pipeline Siting Act on November 22, 2011. This Act will give the Nebraska Public Service Commission authority for siting future oil pipelines (O’Hanlon, 2011). The legislation illustrates the state’s opposition to some of the regulatory holes in NEPA. The Department of State is currently considering implementing one of the
alternative routes proposed in the Final EIS. They hope to reach a decision about the pipeline in early 2013 (Department of State, 2011).

This decision is commendable. It is a rare example of a NEPA review leading to meaningful change in the face of powerful, lucrative energy projects. It also shows state-level dissent from the vagueness of the rules in NEPA. However, though the pipeline may be rerouted, Keystone will most likely still extract the oil from the tar sands in Alberta for use by American consumers. So, though this decision may protect the Ogallala Aquifer, the pipeline will probably still lead to the production of the massive amounts of greenhouse gases, which will exacerbate global climate change. This will likely be the most damaging environmental effect from the pipeline, yet the EIS barely breaches it.

Minimized Alternatives in the Mountaintop Removal Mining EIS

The Programmatic Environmental Impact Statement for Mountaintop Removal Mining was less successful in presenting alternatives that were satisfying to the public, even though it was borne out of a publicly filed lawsuit. It is useful to know the reasoning behind the PEIS in order to understand the problematic nature of the alternatives it proposes. The stated purpose of the PEIS reads as follows:

...To consider developing agency policies, guidance, and coordinated agency decision-making processes to minimize, to the maximum extent practicable, the adverse environmental effects to waters of the United States and to fish and wildlife resources affected by mountaintop mining operations, and to environmental resources that could be affected by the size and location of excess spoil disposal sites in valley fills.

(Mountaintop Mining FPEIS, 2)

Though Bragg did not win the lawsuit, many environmentalists saw the PEIS as a positive outcome, especially based on the wording of the statement of purpose (UCS,
However, upon the release of the DEIS, EPA received an avalanche of comments on the alternatives it proposed. The FPEIS documents almost 84,000 comments.

There were three alternatives proposed in addition to the no-action alternative. Each alternative allots varying levels of deference to different agencies and prioritizes CWA and SMCRA differently. They were each ruled out for concerns about efficiency, collaboration, division of labor, and benefits to the public and applicant (MTM PEIS, at 5). There were many acrimonious comments reviewing each of these alternatives. One archetypal complaint alleged that they are all “process alternatives” that only simplify mining and that, “There is no rational basis for choosing which of the three alternatives is the best. Increased government efficiency at the expense of the human or natural environment is unacceptable.” (MTM PEIS, at 15).

However, though there was a large pool of colorful and disapproving comments about all three alternatives, the largest public unrest was in response to the No-Action Alternative. In the case of the Keystone EIS, the No-Action Alternative was to not build the pipeline at all. Many commenters felt that the MTM PEIS should act in kind, with the No-Action Alternative being a plan to cease and desist all mountaintop removal mining. Instead, the No-Action Alternative suggested merely a continuation of business as usual in terms of permitting and process of mountaintop removal projects.

The FPEIS states that, “the “No Action Alternative” must reflect the existing programs and changes underway at the time of the publication of the DPEIS to establish a basis for comparison of alternatives” (MTM FPEIS, at 20). So, the No-Action Alternative the PEIS presents would not meet the stated purpose of the PEIS, therefore, EPA has grounds to dismiss it. However, the FPEIS fails to consider a true No-Action Alternative
(discontinuing mountaintop removal mining) that would entirely eliminate adverse environmental effects. The FPEIS defends this decision by stating that, “all of the alternatives, including the No-Action Alternative are appropriate for a Programmatic EIS” (MTM FPEIS, at 16).

The choice of the word “appropriate” here is telling. Technically, based on the legal requirements of NEPA, the No-Action Alternative in the PEIS is perfectly reasonable. It outlines what would happen if the PEIS prompted no new actions: mountaintop removal would continue. However, this does not reflect the intent of the PEIS. Every alternative assumes that mining is a foregone conclusion. The issue here is not with the letter of the law, but the spirit of the law.

In an editorial responding to the FPEIS, the Union of Concerned Scientists states, “While administration officials included extensive scientific documentation of the negative consequences of the mining practice in the EIS, they violated a central tenet of an EIS by offering no proposed alternatives to mitigate the worst environmental consequences of mountaintop removal mining” (UCS, 2004). The alternatives this EIS proposes are legal, but misrepresent the entire point of an EIS—to isolate and, where possible, prevent environmental degradation.

**Comparing the Alternatives**

The example of the alternatives in these two Environmental Impact Statements highlights the limitations of NEPA. As the Keystone XL EIS shows, citizens can use alternative options presented in EISs to succeed in changing harmful projects. Though the rerouting decision is still pending, it is a major breakthrough that citizens used an alternative option to derail a multi-billion dollar, multinational project. This is a strong
argument for the benefit of representative and thorough alternatives. At the same time, there are severe limits to this victory. The climate change effects of the pipeline seem all but inevitable (Goldberg, 2011).

While the alternatives section of the Keystone XL EIS demonstrated some of the promise and potential power of an EIS, the Mountaintop Removal Mining PEIS threw NEPA’s limitations into sharp relief. This PEIS managed to completely sidestep the spirit of the law by failing to present alternatives that address the worst environmental impacts of the project. Despite the remonstrations of activists, mining companies continue to employ some of the most harmful tactics of this kind of fuel extraction. This comparison unearths many of the complicated consequences of a statute as potentially powerful as NEPA.

These two cases raise the question of how EPA can reimagine NEPA so that the alternatives presented not only give stakeholders a clear idea of the entire project, but can also be used for citizen involvement, and ideally, a healthier environment. This comparison is meant to show a positive example of use of NEPA, but also emphasize its woeful shortcomings.

**IV. Comparison #2: Narrowness of Scope**

NEPA offers a detailed and formal framework for addressing issues of environmental quality. NEPA and subsequent legislation have established procedure that is intended to guide a diverse array of environmental impacts through a normative process, resulting in legible guidance for policy-makers. In one sense, the legalistic formality of the NEPA process represents an aspiration to ensure major environmental impacts do not slip
through the cracks. Unfortunately, subjecting environmental review to statutory inflexibility can lead to a failure to fully protect environmental quality.

**The Keystone XL Pipeline: The Case of the American Burying Beetle**

The EISs prepared for the Keystone XL pipeline and for mountaintop removal in Appalachia highlight this flaw in the NEPA process. In numerous instances, the EISs follow the letter of the law by analyzing highly targeted environmental impacts in great detail. The net result of their in-depth investigations, however, does not clearly demonstrate a consideration of the comprehensive environmental effects of either project.

The wildlife analysis portion of the Keystone XL EIS provides an instructive example of how NEPA and associated legislation's intent is overwhelmed in its execution. Regulations promulgated under the Endangered Species Act (ESA) direct that a review be performed evaluating whether or not “any listed or proposed species or designated or proposed critical habitat that may be present in the action area,” at which point a full biological assessment (BA) must be performed. (ESA, 1973 at §402.12(c)(1)) The Keystone XL EIS contains an extensive evaluation of 22 federally-listed endangered or threatened species ranging from large mammals like the Louisiana Black Bear to invertebrates like Ouachita rock pocketbook. After initial evaluation, the U.S. Fish and Wildlife Service (USFWS) determined that only one of these species, the American burying beetle, was likely to be adversely affected by the project.

The American burying beetle is an inch-long invertebrate characterized by its distinctive orange spots and its consumption of carrion. It was first listed as a federally-
protected endangered species in 1989 (Fed. Reg., 1989). The determination that the beetle would likely be adversely affected by the Keystone XL project triggered a full biological assessment. Comprised of a 139-page document and hundreds of pages of appendices, the BA is nothing if not extensive. The BA included a geographic analysis of the beetle’s habitat in relation to the pipeline’s right of way and facilities; an analysis of soil temperatures and moisture content in the beetle’s habitat; and a consideration of the beetle’s history as it relates to its endangerment status. The BA even contains a series of detailed set of conservation measures to be taken at different stages of the pipeline’s construction and operation. These include restrictions on the time of operations, the use of lights during construction, and trap and relocate guidelines for use prior to construction. (BA, 2011 at 3-41).

Such extensive analysis and guidelines for the American burying beetle are excellent steps as it relates to protecting one species of endangered beetle. But does this truly address the impacts that construction and operation of the Keystone XL pipeline will have on wildlife in a holistic manner? Of the 22 federally-listed endangered species listed in the BA, USFWS determined that 11, in fact, were likely to be affected, but not adversely. Consequently, drastically less effective conservation measures apply to these species.

Citizens can rest easy knowing that the American burying beetle is protected. But the intent of the ESA, NEPA, and related legislation is not simply to protect the American burying beetle (or any species, for that matter) in a vacuum. Rather, these laws are intended to be tools for the comprehensive protection of a complex and interdependent ecology. In the example presented by the Keystone XL EIS’s biological assessment, the letter of the law has been followed, but the spirit has been lost.
Similarly, the programmatic EIS for Mountaintop Mining contains numerous instances of environmental review that technically satisfy NEPA requirements, but flout the actual intent of the legislation. Impacts on water quality in streams and on aquatic habitats formed a major component of the MTM EIS. MTM affects watershed quality in two primary ways: burying streams during the valley fill process, and contaminating waterways with runoff from mining operations.

The preparers of the MTM EIS acknowledge that MTM necessarily involves “unavoidable aquatic impacts.” (MTM, 2005 at ES-6) As such, mitigation of damage to affected streams is an important consideration in the EIS. However, the actual mitigation measures favored by the preparers of the EIS reflect the same unwillingness to address the problem holistically.

Mining operations are regulated under the Clean Water Act (CWA), and accordingly, the EIS relies on CWA language to determine an appropriate definition of “mitigation.” CWA regulations define mitigation in five ways:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.
(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(e) Compensating for the impact by replacing or providing substitute resources or environments.

(CWA, 1972 at §1508.20)

These definitions are inclusive, and acknowledge that there are many ways to mitigate environmental impact. But, the critical language comes just before these categories of
mitigation; the CWA says that mitigation *includes* these actions. In other words, mitigating water impacts using only one of the five strategies is legally satisfactory under the CWA.

That is exactly the strategy that is advocated in the programmatic EIS. In analyzing alternatives to the current practice of MTM, the EPA accepts continuing MTM operations as a foregone conclusion. Because there is no hope in the EIS that MTM will cease or be significantly altered, option “(e),” compensation, is the only appropriate mitigation measure.

In the EIS, compensation measures take the form of in-kind stream restoration projects. These projects could take the form of either creating new streams on the fill deposited into valleys after mining, or contamination mitigation efforts in other streams regionally. The goal of this type of mitigation is to restore the functional values lost in the process of mountaintop mining and valley fill projects.

The EIS correctly notes that “the Appalachian coalfields provide almost limitless opportunities for watershed improvement following more than 100 years of abandoned mine land (AML) problems.” (MTM EIS, 2005 at IV.B-9) It is true that compensation is one important technique of mitigation that could be used to great effect in the coal mining regions of Appalachia. EPA notes that in-kind stream restoration would be extremely capital-intensive for mining companies, and that this cost is likely to provide a disincentive to mining companies to disturb stream segments.

But the mine-now-pay-later regulatory framework has its drawbacks. Effective regulation will be needed to ensure proper procedure in stream restoration projects, to verify what each mine’s impact has been to specific stream segments, and to monitor timely and accurate disbursement of compensatory funds. Additionally, stream recreation is far
from a perfect science. Even the EPA notes in the EIS that, “functioning headwater streams have not been re-created on mined or filled areas as part of mine restoration or planned stream mitigation efforts.” (MTM EIS, 2005 at III.D-20) This moves beyond shifting a regulatory burden to EPA (which is already presupposed in the PEIS). It demands of the EPA and other administrative agencies that they expand their mandate into entirely new, experimental areas, expanding the capacity for error.

There is a more essential critique to be made vis-à-vis the PEIS’s proclivity towards compensatory mitigation. In rejecting the other four categories of mitigation—avoidance, minimization, rectification and reduction over time—EPA is missing an opportunity to work creatively toward a comprehensive solution. It is not difficult to imagine a patchwork regulatory structure. A conservative permitting process could be introduced to avoid or minimize future instances of MTM, and scaled down project sizes could also be used to minimize impacts. These and other mitigation measures could be utilized in tandem with compensatory mitigation measures in a way that made existing coal mining practices less and less effective for mining companies. But, as long as mining companies know that MTM is not off the table, innovation of less impactful mining techniques are likely to remain disincentivized.

The Shortcomings of a Narrow Scope

Either of these EISs could have been improved had those preparing them approached the assessments in a more comprehensive way. But truly comprehensive environmental management requires analysis at an even broader scale. The Keystone XL FEIS and the MTM PEIS are conspicuously similar—both as large-scale energy-related assessments and in their overall indifference to climate change as a relevant factor for
assessment. Oil, like the crude to be transported through the Keystone XL pipeline, and coal, like that harvested through MTM, are the two principal resources that ultimately contribute to greenhouse gas emissions. While it is certainly true that each of these EISs address localized impacts, these and similar projects’ most salient impacts may be their facilitation of global climate change.

In a letter to two Assistant Secretaries of State, EPA official Cynthia Giles noted the leading flaw in the Keystone XL EIS’s scoping:

*Based on our review, there is a reasonably close causal relationship between issuing a cross-border permit for the Keystone XL project and increased extraction of oil sands crude in Canada intended to supply that pipeline. Not only will this pipeline transport large volumes of oil sands crude for at least fifty years from a known, dedicated source in Canada to refineries in the Gulf Coast, there are no significant current export markets for this crude oil other than the U.S. Accordingly, it is reasonable to conclude that extraction will likely increase if the pipeline is constructed.*

(EPA, 2010)

Satisfying U.S. demand for oil is, of course, the key underlying motivation for constructing the pipeline. But what the EPA recognizes—and what the EIS fails to recognize—is that the precedent set by satisfying that demand is one that encourages oil consumption.

In actuality, no consideration is given in either EIS to how either of these projects fit into a national or global regime of emission-producing energy production. In fact, climate change is barely mentioned either of the two final EISs, despite the fact that each will ultimately prolong reliance on fossil fuel-based energy technologies. This reflects an inherent flaw in the NEPA framework. NEPA-based regulations can be extremely useful as measures of discreet, limited environmental impacts. But, there is no synthesizing mechanism to assist policymakers in determining the long-term and comprehensive effects of all major energy-related projects.
V. **Comparison #3: Agency Regulatory Strategy**

This section will compare federal agency strategy for regulating ongoing environmental impacts associated with each project. While it’s important to recognize that both EIS procedures: 1) lacked alternatives and 2) were narrow in scope, it is useful to examine several specific efforts that sought to attach regulatory teeth to the EIS process. Each lead agency found itself trying to piece together a patchwork of existing environmental regulations in the hope of building a framework for enforcement. Whether these efforts were successful or not depended on how well the Department of State or EPA used information unearthed in the NEPA process to influence the regulatory agenda.

It’s easy to understand why collecting and directing the flow of information is one of the most important roles a lead agency can play in the EIS process. The spirit and intent of NEPA is to encourage federal agencies to “stop and think.” The idea is to encourage comprehensive understanding of impacts before launching a project that will harm the environment. Mandating a certain amount of information disclosure carries out this objective. Standing alone, the statute has little enforcement power. According to legal scholars, “Much of environmental law [and NEPA in particular] is concerned with obtaining information, organizing it, and directing it to where it can do the most legal and political good.” (Platter et.al., 2004) Accordingly, it is necessary to assess agency strategy according to how well each lead agency cultivated and directed information towards effective legal outlets.
Keystone Project: Low-Quality Information; Low Quality Enforcement

The Keystone FEIS takes a preventative approach to minimizing environmental impacts. Unfortunately, the lead agency (Department of State) failed to elicit or organize data regarding potential for pipeline leaks. In the end the DoS was unable to find any major “regulatory stick” to shake at Keystone. This was mainly due to the inability of government officials to mobilize good data and direct it to appropriate (and potentially potent) statutes. The Keystone EIS did employ several major statutes such as the Endangered Species Act, but this effort failed to produce any substantive changes in project scope (see Section IV). As we learned in Section III, we can thank an outraged public, not regulatory action, for the decision to delay and/or reroute the pipeline project.

To further illustrate this point, it is useful to examine how and why potential spill impacts were discussed in the Keystone EIS process. Initially, the DoS included little existing data regarding the risk of both catastrophic and small leaks. This was a huge oversight, considering that a “worst-case scenario” spill into a major river (e.g., Missouri River) during the project’s lifetime could potentially contaminate enough water to form a plume of carcinogenic benzene and other chemicals that “could extend more than 450 miles, at concentrations exceeding the Safe Drinking Water Act Maximum Contaminant Level (MCL) (i.e., safe concentration for drinking water)” (Stansbury, 2010).

An internal memo at the Department of State claims that the initial EIS failed to take into account a wealth of information accessible within the “National Resource Damage Assessments” or (NRDAs), which catalogued a series of historical pipeline spills:

*The current discussion in the draft EIS is limited with regard to actual documented impacts, and we suggest these NRDAs, several of which have been generated in response to major oil spills from pipelines, be reviewed and be*
used as a source of information regarding the environmental impacts of pipeline oil spills.

(EPA, 2010)

After this recommendation the FEIS did seek out additional data on spills. Unfortunately, the Department of State failed to incorporate this information into a meaningful legal forum.

This lapse was illustrated most starkly by the nearly complete lack of discussion in the Keystone FEIS concerning the Safe Drinking Water Act (SDWA). This statute could potentially regulate a large range of activities in danger of impacting both drinking water supplies and wellhead protection areas. Instead, the EIS discussion was focused on “best practicable” preventative spill measures such as pipeline thickness, flow rate, and the composition of material flowing through the pipeline. US DOT eventually issued 57 recommendations regarding post-construction operations and maintenance procedures, but failed to tie these recommendations to binding guidelines (DoS Executive Summary FEIS, 2011). This oversight represents a huge missed opportunity to trigger meaningful and ongoing regulation of pipeline project impacts.

Mountaintop Removal: Hope for Long-Term Control

The Mountaintop Removal case played out quite differently in terms of agency strategy. The EPA decided to direct ongoing decision-making power towards Section 404 the Clean Water Act, which now regulates surface mining on a site-by-site basis. To execute this strategy, EPA used its ability to issue rulemaking guidance. This tool turned out to be quite powerful. While site-by-site regulation has its drawbacks, this case does provide a good example of the ability of federal agencies to use information generated through NEPA to expand and direct regulatory control.
The environmental problems associated with mountaintop removal are many and diffuse. Not only does each surface mining project have significant impacts, it has unique impacts according to site-specific conditions such as soil, topography, and proximity to drinking water sources. This is not an ideal situation for preventative measures, other than banning the practice of MTM outright. Instead EPA focused on bolstering existing CWA regulation using best available information.

The EPA issued a rulemaking guidance for Appalachian surface coal mining in 2010. Mountaintop removal mining is one of the most damaging forms of surface coal mining, and continues to be the main focus of EPA’s efforts in this area. The guidance was updated in 2011 in the form of a “Final Memorandum”. This document lays out specific goals for influencing the regulation and scope of surface coal operations:

_Although guidance is neither legally nor practically binding, it is frequently used by Federal agencies to explain and clarify their understandings of existing requirements. In this case, the Agency believes that EPA Regions 3, 4, and 5 and the public will benefit from new guidance that is informed by available peer-reviewed science, extensive public comment, lessons learned...and [new] Agency understanding with respect to existing CWA requirements._

(EPA Final Memorandum, 2011)

From this passage it’s clear that the central purpose of using a guidance is twofold: 1) to clarify the letter and intent of the law regarding the topic of concern, and 2) to “apply best available science to develop recommendations that ensure that permits issued under Sections 402 and 404 of the CWA comply with the law and protect water quality.” (EPA Final Memorandum, 2011)

By directing information that arose in the NEPA process towards a rule-making guidance, EPA created a more robust regulatory system for MTM review. Within the guidance EPA summarized scientific evidence that was “largely unknown” even ten years
ago. Highlights include the discovery that more than 1,200 miles of Appalachian streams have been filled by surface coal mining practices, and that deforestation from existing surface mines amounts to an area larger than the State of Delaware. (EPA Final Memorandum, 2011) Perhaps most importantly, the EPA acknowledged that the cumulative effects of mining operations were still largely a mystery.

The EPA guidance also contains specific instructions on how to improve CWA Section 404 permit compliance rates. Specifically, EPA sought to improve the “rational basis” for Kentucky, Virginia and West Virginia’s narrative water quality permit standards. There is a great deal of discussion regarding EPA’s commitment to work with the Army Corps of Engineers as well, the goal being to develop a set of best management practices for surface coal mining.

Lastly, it’s important to realize that simply engaging the CWA does not automatically ensure good long-term enforcement. As was mentioned in the previous section, capacity for enforcement is dependent on many factors such as project size and favorable mitigation opportunities. It’s unclear whether there are adequate financial and/or staff resources available to effectively address each new water quality concern under Section 404. More than one Appalachian mining company has been sighted for hundreds of CWA violations over the course of several years. Also, the responsibility of administering CWA requirements is delegated to State agencies in most of the country. In this case each State’s responsibility is quite large. States like West Virginia have been historically strapped for cash. Taking on a large level of enforcement might be a challenging prospect. Without proper oversight and funding support, State governments could end up delivering only minimal enforcement capacity.
Comparing Agency Action

Although both agency strategies had their faults, it appears that the MTM programmatic EIS produced a more manageable and realistic long-term policy solution. By transferring information and data that came out of the NEPA process into a rulemaking guidance, EPA effectively expanded federal regulation to regulate adverse effects of MTM. More importantly, EPA created a framework for long-term monitoring and improvement under the CWA. The chart below provides a summary of agency strategy in each EIS project:

Table 1: Regulatory Strategy

<table>
<thead>
<tr>
<th>Regulatory Strategy</th>
<th>Keystone XL (SDEIS &amp; FEIS)</th>
<th>Mountain Top Removal (FEIS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>· Limit impacts up-front in project design stage.</td>
<td>· Regulate impacts long-term on a site-specific basis.</td>
</tr>
<tr>
<td>· DOT recommends 57 project-specific conditions for pipeline operation and maintenance procedures.</td>
<td>· EPA issues rulemaking guidance regarding CWA Section 404 permits for surface-coal mining.</td>
<td></td>
</tr>
<tr>
<td>Results</td>
<td>· Location of project may be changed in the short term.</td>
<td>· Mountaintop removal operations are continually regulated through the CWA.</td>
</tr>
<tr>
<td>· No long-term enforcement of O&amp;M recommendations.</td>
<td></td>
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</tr>
</tbody>
</table>

While it might not happen overnight, improved site-specific CWA permits will be particularly helpful in regulating the harmful effects of surface coal mining. Within the Keystone project, there is no such long-term commitment to regulate projects effects.
VI. Conclusion

The analysis revealed fundamental regulatory gaps in NEPA’s structure. While each EIS comports with the letter of the law, it is not certain that the ultimate result of either is a healthier environment. The selected critiques of the EISs’ scope, alternative visions, and regulatory strategy have shown that a “good” NEPA process is highly dependent on the ability of agency actors, the public and interest groups to mobilize information uncovered by an EIS, and put it to good use.

Specific instances of success in each case were few and far between, but they did show hope for how the NEPA process can be improved in the future. The “alternatives” discussion surrounding the Keystone XL EIS demonstrated the potential power of protesters to delay and/or possibly reroute a major national fossil fuel project. It seems that within NEPA’s “stop and think” framework, sometimes a lack of information can be just as powerful as the right information because it mobilizes stakeholders to take action.

Second, the narrow scope of NEPA was shown to effectively regulate specific impacts (i.e. to an endangered species) while ignoring cumulative effects. Unfortunately, as long as mining companies know that inherently harmful practices like MTM are not off the table inherently harmful practices like MTM are available, innovation towards less impactful mining techniques are likely to remain unattractive to mining companies. The third comparison provided a possible way forward in which regulatory agencies can organize and strategically direct information from the NEPA process to inform and expand existing laws and regulations. By using new information to form a rule-making guidance, EPA created a more robust regulatory system for MTM review.
During both EIS processes, the letter of the law was followed, but the spirit was lost. Both projects as they stand today will inflict massive environmental harm for years to come. The “bright spots” mentioned above are not from structural strengths in the NEPA statute, but rather individual actors choosing to utilize the process to the best extent they can. While the techniques used by actors in these situations should be publicized, more substantive changes are needed. It seems that NEPA will remain a “paper tiger” without actual teeth until the entire statute is reformed to demand a more comprehensive approach.
Appendix A:

List of Abbreviations:
BA: Biological Assessment
CWA: The Clean Water Act
DoS: United States Department of State
DEIS: Draft Environmental Impact Statement
EIS: Environmental Impact Statement
ESA: Endangered Species Act
EPA: United States Environmental Protection Agency
FEIS: Final Environmental Impact Statement
MTM: Mountaintop Removal Mining
NRDA: National Resource Damage Assessment
NEPA: National Environmental Policy Act of 1969
SEIS: Supplemental Environmental Impact Statement
SMCRA: Surface Mining Control and Reclamation Act of 1977
USFWS: The United States Fish and Wildlife Service
References


