REPORT OF THE
JOINT STUDY COMMITTEE STUDYING

THE FEASIBILITY OF ESTABLISHING A COAL SLURRY PIPELINE IN THE COMMONWEALTH AND THE UTILIZATION OF VIRGINIA COAL

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

House Document No. 27

COMMONWEALTH OF VIRGINIA
RICHMOND
1984

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Report of the
Joint Study Committee Studying
the Feasibility of Establishing a
Coal Slurry Pipeline in the Commonwealth
and the Utilization of Virginia Coal
To
The Governor and the General Assembly of Virginia
Richmond, Virginia
January, 1984

To: Honorable Charles S. Robb, Governor of Virginia
and

The General Assembly of Virginia

INTRODUCTION

Pipelines for carrying fluids of all types including solid materials slurried with water have been known and used commercially a long time. Coal slurry pipelines have been in the public eye in the United States since the early 1960's.

In the middle fifties (initial operation in 1957), there was built and operated the first commercial coal slurry pipeline (CSP) in the United States. That line, the Cadiz line, was built in Ohio to serve the Cleveland Illuminating Company. This line was built without the use of the power of eminent domain, although it was available through Ohio statute to the corporation had such power been needed. The Cadiz pipeline remained in operation for about 5 years and was shut down when the competing railroads met the pipeline rates and underwrote the completion of the purchase of the pipeline.

There is one coal slurry pipeline in operation today. The Black Mesa line carries coal from a mine in Arizona to an electric power station in Nevada. This line was also built without the use of eminent domain and was constructed through terrain which would have made railroad construction impractical.

Since 1962 there have been numerous attempts to have Congress pass legislation which will empower coal slurry pipeline corporations to use federal eminent domain powers similar to those used for petroleum and natural gas pipelines. Such legislation would have pre-empted all state-imposed limitations. The last such effort resulted in a defeat by the House of Representatives in September, 1983, and thus there is no pending coal slurry pipeline legislation before Congress.

It was in 1962 that the General Assembly of Virginia first addressed the coal slurry pipeline issue.[1] At that time there was no mention of coal slurry pipelines in the Virginia Code and there was interest from out-of-state corporations to build a line through Virginia. Also in 1962 West Virginia passed legislation to allow eminent domain powers to be used to construct coal slurry pipelines. A bill was introduced in Virginia to empower coal slurry pipeline corporations to use eminent domain. During the committee process, the bill was amended to prohibit such use of eminent domain, and the resulting measure passed both Houses and became law on July 1, 1962.

Last year, two bills (H.B. 262 and H.B. 514) were introduced to the 1982 General Assembly, both of which would have resulted in the repeal of the prohibition passed in 1962. Neither of these bills was reported from committee. Instead, there was a resolution (HJR 117) passed to authorize a study of the coal slurry pipeline issue. A copy of HJR 117 is Appendix A of this report.

METHODOLOGY

On May 11, 1983, the Joint Study Committee Studying Coal Slurry Pipelines and the

Utilization of Virginia Coal pursuant to HJR 117 met for the first time. Delegate Owen Pickett was elected chairman and Senator Peter Babalas was elected vice-chairman. Dr. Don L. Shull was introduced as project manager for this study. The Study Committee set an agenda and schedule for itself which called for a final report to be ready for the 1984 General Assembly Session, a study on the technical aspects of the issues to be conducted by consultants, and at least four public hearings. State agencies to be involved in the study, namely, the Office of the Attorney General, the State Corporation Commission, the Council on the Environment, the Department of Highways and Transportation, and the Virginia Water Resources Research Center, were requested to appoint cognizant individuals and to supply information requested.

Two outside consultants were retained. The BDM Corporation was retained to develop information on the coal industry pertinent to slurry pipeline development, coal transportation facilities (rail and pipeline), the economics of coal transportation, and the environmental impact of coal slurry pipeline development. A subcontractor, the Dewberry & Davis Corporation, was utilized by BDM to develop the environmental information. Later in the study Old Dominion University, through its Applied Marine Research Laboratory, was hired to confirm data concerning the disposal of slurry wastewater in the Tidewater area. All consultants were required to operate on a very tight schedule, and they met their deadlines with satisfactory reports. (Executive Summaries of the two reports appear as Appendices B and C).

A series of four public hearings were held from mid-July to mid-October, according to the following schedule.

Date	*Place*
July 22	Southwest Va. Comm. Coll., Richlands
August 17	City Council Chambers, Norfolk
September 27	General Assembly Building Richmond
October 20	Clinch Valley College, Wise

These public hearings were well attended and proved to be the source of a wealth of information used in this study.

RESULTS

Utilization of Virginia Coal [2]

The Study Committee was charged with the responsibility of presenting findings related to the utilization of Virginia coal at present and as projected over the life of a pipeline project. This responsibility was viewed to be of equal importance to the study of the pipeline. Of particular interest is the question of whether there is a relationship between these two aspects of the coal industry in Virginia.

Virginia coals are among the highest quality coals in the nation with high BTU, low ash, and low sulfur content. However, the geologic distribution of these coals also make them among the most expensive to produce. The competitors for the markets open to Virginia coals are southern West Virginia and eastern Kentucky, both of which far overshadow Virginia in reserves. The high f.o.b. mine prices of coal from the Central Appalachian area make market position dependent on reliability, availability, and transportation costs. Assuming the first two factors to be equivalent for the three areas, the market share obtained by each is largely dependent on mine mouth and transportation costs.

The principal uses for Virginia coal have been electric power generation, eport (both steam and metallurgical coal), and domestic coke production. There is general agreement that the metallurgical coal market (domestic and export) will remain essentially flat for the foreseeable future. Commercial and residential coal consumption will not be significant market outlets, and

industrial consumption is expected to increase slowly for the next several decades; compared to the utility sector, however, industrial use is relatively small. These facts show that if Virginia is to maintain her share of increased coal production, the demand base will have to come from steam coal exports and domestic electric utility markets. Further, since the electric utility market in Virginia is limited, the largest market will come from coastwise movements to East Coast utilities.

It is interesting to compare the total estimated demand for U.S. steam coal with that for Virginia, as in the following table.

	1982 Actual	1990 Probable	2000 Probable
Export	27	70	155
East Coast Utility	13	25	35
Total	40	95	190
Virginia	9*	25	40**

* - 1980
** - 1995 estimate
1 - BDM report, Table I-2 (1983)
2 - VSPE report, Table 2 (1983)

These data project a significant growth of demand for Virginia steam coal; however, they also project a declining market share which provides considerable margin to improve sales. Coupled with 1983 production figures for Virginia coal showing a loss of market share to other Central Appalachian producers (down 15% compared to comparable 1982 figures) and loss of total U.S. market share (down nearly 1% from 1982), these data project an uphill battle for Virginia coal producers for some time to come. Virginia has a demonstrated bituminous coal reserve base of 3,512 million tons (as of 1975). The Division of Mineral Resources and the U.S. Geological Survey are currently in the process of re-estimating coal reserves in the State. Seventy-three percent (73%) of the coal reserves are in Buchanan, Dickenson and Wise Counties, and 80% of the coal in those counties is deep-mined. Using current production and reserve estimates, the potential annual Virginia production over the period 1990-2020 is estimated to be 96.8 million tons. This total is allocated as 26.8 in Buchanan, 24.4 in Wise, and 16.5 in Dickenson, with the remainder (29.1 million tons) distributed among four other coal-producing counties.

Transportation of Virginia Coal [3]

Currently coal mined in Virginia is carried to the marketplace by the Norfolk Southern Corporation and the CSX Corporation. Norfolk Southern carries about 83% of Virginia's coal and CSX about 17%, with Norfolk Southern carrying essentially all of the Virginia coal that goes through the port facilities. Of course, both railroads carry large tonnages of coal from other states through Virginia, particularly to the port.

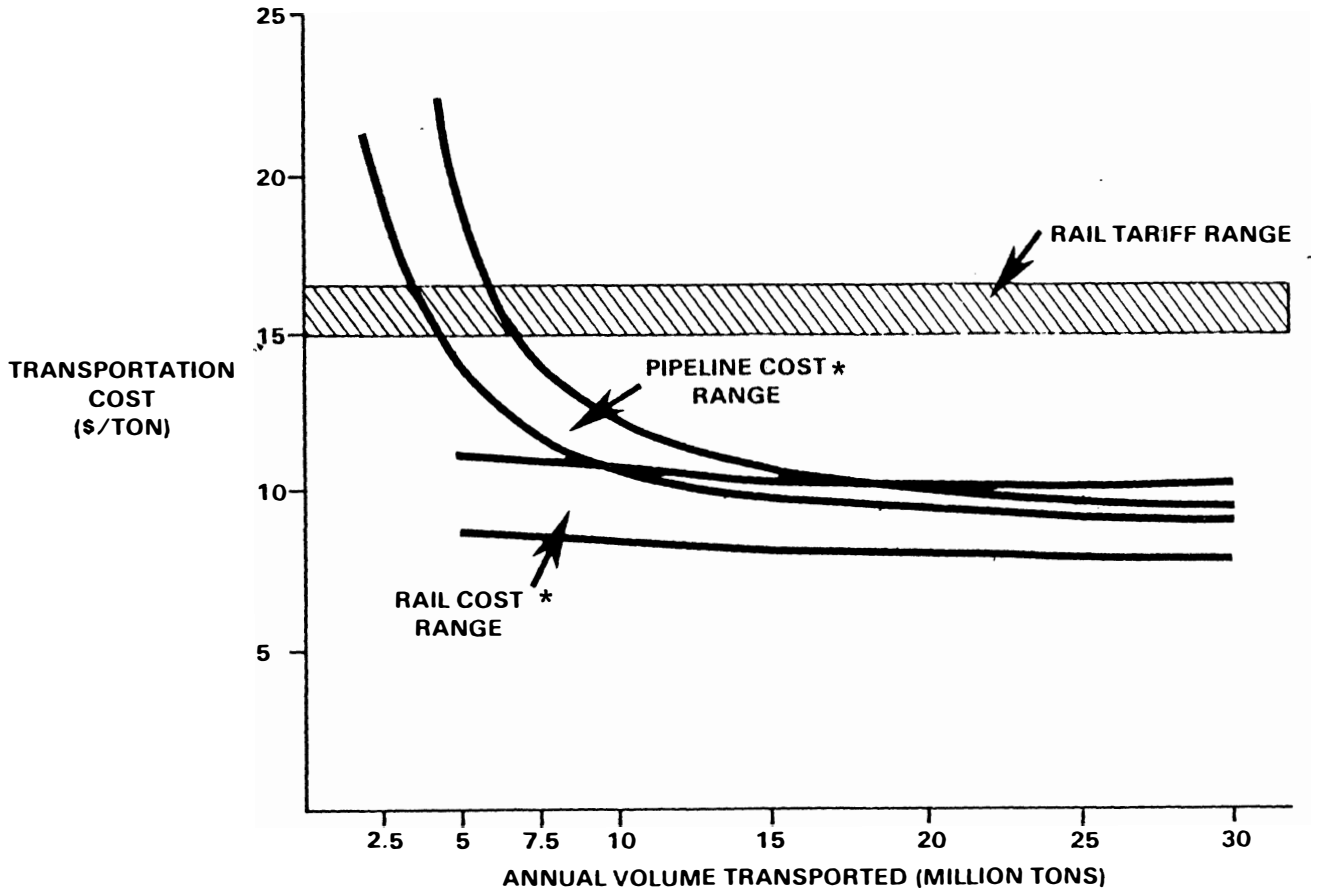
Under previous ICC regulations, each railroad was required to establish and publish tariffs for coal movement from specified origins to specified destinations. Under current deregulated pricing, private contracts between shipper and carrier are allowed, and the rates in these contracts are not open to the public. However, where contract rates are not in effect, the former tariffs still stand and are used for coal movements.

There have been a number of ICC actions over the last several years serving to define deregulated rail rates. The most recent actions were February, 1983, ExParte No. 347 (Sub. No. 1), Coal Rate Guidelines Nationwide , and May, 1983, Ex Parte No. 346 (Sub No. 7), Railroad Exemption - Export Coal . The net result of these movements to deregulation has been to give railroad companies considerable leeway in rate making for coal transport. There has been a substantial move to contract rates, but since these rates are not open to public scrutiny, it is not possible to determine the net effect of rate deregulation at this time.

The principal reason for this study is to determine the feasibility of transporting coal through a CSP in competition with the railroads. The technology for transport of coal-water slurries is an established and proven technology. A CSP has inherent advantages of being quiet, efficient, and potentially cheaper than rail haul of coal for very large annual tonnages over very long

distances. At the same time, the inherent disadvantages of a CSP are the use of water, the need to dispose of water separated from the coal prior to combustion, and the rigidly fixed nature of pipelines.

In order to fashion an equitable comparison of the costs of rail and pipeline transportation of coal, a number of reasonable assumptions about the pipeline have to be made. Since the railroad is in place and operating, the condition under which the pipeline costs are calculated have to be made to match those of the rail haul. The fundamental assumption for the cost calculations is that only steam coal is considered in amounts above that which is now transported (i.e., incremental tonnage). The most cost effective pipeline route was chosen, and the slopes of the route were specified to conform to hydraulic transport constraints. Both rail and pipeline gathering costs are accounted for and neither includes additional costs for transshipping at the eastern end. Pipeline costs include water treatment at both ends. Having accounted for the necessary accounting parameters for both rail and pipeline, the cost comparison between the two modes can be represented by the following Figure.[4]



SOURCES: BDM ESTIMATES

* full cost including 16.5% composite return on investment at 40/60 debt/equity ratio financing.

Pipeline and Rail Cost Comparison

It can be seen from the Figure that, on full cost basis, pipelines do not become competitive with rail until an annual throughput volume reaches 15 MT/YR or greater.[5] It is also seen that in Virginia, in many cases, railroads can slightly underprice pipelines on a cost basis, even at the very high volume levels. However, if current rail tariffs, which fall in the $15 and $16 per ton range, are considered, pipeline transporatation of coal becomes very attractive from an economic perspective. At current tariffs, pipeline transportation of coal could save as much as $4 to $5 per ton of delivered coal at Hampton Roads.

Projections can now be made to anticipate the conditions which would be expected to determine a market share for a CSP. Given the prospective 1990 and 2000 market demand for steam coal and current rail tariffs, it is likely that a CSP from southwest Virginia to Hampton Roads would be an economically attractive alternative to rail haul. However, if the railroads felt a direct threat of competition for a particular shipper's traffic, it is also likely that they would reduce their tariffs substantially to underprice the pipeline. Therefore, if a CSP were to be built, it is likely that a consortium would have to be formed which ties shippers and consumers together prior to implementation of the project so that an assured long-term coal supply and demand could not be undercut by reduced rail tariffs. If competitive bids for transportation rates are the rule, it is likely, as in the case of the recent Arkansas Power and Light decision, that in each instance the railroad companies would move to underprice the pipeline bids.[6] No matter what effect this would have on a coal pipeline, such reductions, if they occur, would greatly benefit Virginia coal producers.

Southern West Virginia has a considerably larger coal production capacity and reserve base than southwest Virginia, and the distance from the Beckley area to Hampton Roads is slightly shorter than that from southwest Virginia. BDM's analysis has shown that the costs for a 15/YR Beckley to Hampton Roads pipeline would be about $.20 per ton cheaper than for its southwest Virginia counterpart. If a West Virginia coal slurry pipeline were implemented which excluded Virginia coal, there is little doubt that the market for southwest Virginia steam coal would suffer markedly.

Economic Impacts of a Virginia Coal Slurry Pipeline [7]

a. Increased Coal Transport Scenarios

Economic impacts have been examined for four coal movement scenarios. Each scenario involves the transport of additional incremental coal tonnages from southwest Virginia to the Hampton Roads area. For each scenario, the following four data are computed:

(1) Pipeline construction employment and income,

(2) Pipeline operations employment and income,

(3) Railroad operatons employment and income, and

(4) Additional employment and income resulting from increased coal production.

For summary purposes and to allow direct comparison with a scenario involving a loss of rail traffic presented later, only one case is presented here. It should be noted that increased coal tonnages could be transported by either pipeline or rail, and therefore both types of data are shown. The economic impact of increased coal production could result from either an all rail or all pipeline movement. It is impossible to know ahead of time what the actual scenario would be; however, the specifics of a given scenario are not as important as the relative range of the economic impacts that could be expected to occur. The impact data presented include secondary employment multiplier effects. The case presented in Table I is for a single origin 15 MT/YR pipeline from the Grundy area to Hampton Roads.

Table I
Employment and Income Impact of a 15 MT/YR Single Origin Pipeline from Grundy to Hampton Roads

Activity	Total Employment Yearly Employees	Yearly Compensation ($000)
Pipeline - Construction (3 years)	2,573	$66,376
Pipeline - Operations	935	$19,204
Alternate		
Railroad - Operations	1,226	$24,626
Coal Production (Incremental)	10,135	$259,473

Table I shows a $66 million per year impact for three years resulting from the construction of 15 MT/YR pipeline. Subsequently, a $19 million a year increase in income would result from annual pipeline operations. Correspondingly, a 15 MT/YR rail haul would result in annual operating income in Virginia of nearly $25 million (i.e., slightly higher than found for the pipeline case). In either a rail or pipeline case, a 15 MT/YR increase in coal production in the Buchanan County area will result in an employment increase of about 10,000 workers and an increased income within the State of about $260 million. The most significant economic impact to Virginia, by a wide margin, will result from increased coal production. This increased production in turn is more likely to occur if the delivered cost of coal is reduced. Competition in coal transportation may help to reduce delivered cost.

b. Loss of Rail Traffic Scenario

The interaction in the world coal market coupled with the lead time required to increase coal production may create a situation whereby the pipeline is transporting coal tonnages greater than the level of incremental production. This situation would lead to a loss of rail traffic because the railroads would lose coal tonnage to the pipeline. The extent and duration of the lost tonnage depends on the demand for coal and the level of incremental production. If the demand for steam coal continues to increase and incremental coal production keeps pace accordingly, then the lost tonnage situation would persist for only a few years rater than the full 30-year pipeline operational period.

Table II provides summary employment and income levels for the lost tonnage scenario. A 5 MT/YR loss in coal tonnage assessed against the Norfolk Southern Railroad, which carries over 83 percent of the coal originated in Virginia, results in revenue income and employment losses as shown in the Table.

Table II
Impact of 5 MT/Year Change in Coal Tonnage on Norfolk Southern Corporation

	1982*	5 MT/year*	%
Revenue (total)	$3,358,996	$77,500	2.31
Net Income	$ 411,368	$ 9,491	2.31
Employees	41,260	136**	0.33

* Dollars are expressed in thousands.

** Represents reduction in train crew personnel only.

Source: BDM estimate

In terms of Norfolk Southern overall revenues and income, a loss of 5 MT/Yr coal revenues will result in a 2.31 percent change in revenues (i.e., $77 million) and income (i.e., $9.5 million). Given that Norfolk Southern could reduce their variable costs accordingly, the imp act of lost tonnage could result in a $13.6 million loss from fixed opera ting expenses. Should this amount be spread over all other freight revenue, the impact would result in a 0.4 percent increase to other existing freight tariffs.

c. Potential Utility Cost Savings

The final economic impact area is the cost savings that could be passed on to consumers resulting from a prospective reduction in the transportation cost of coal to VEPCO. A $4 per ton reduction in coal rates for VEPCO at a consumption level of 6 MT/Yr, if passed through to its customers, would result in a $24 million consumer savings. This results in a $7.62 per year savings for residential customers, a $49.43 per year savings for commercial customers, a $3,564.07 per year savings for industrial customers, and a $260.12 per year savings for other customers based upon current customer distributions.

Environmental Impact of Increased Coal Transportation Requirements [8]

a. Coal Slurry Pipeline Impacts

1) System Description

To identify and evaluate the environmental impacts of a coal slurry pipeline, it is necessary to describe the various stages of the system, which are preparation, pumping, and dewatering. In the preparation stage, the coal is pulverized at the preparation plant, mixed with the proper amount of water and transferred to slurry tanks. Long distance flows require intermediate booster pump stations to maintian pipeline flow and pressure. Usually, these booster pump stations have a supplementary water supply to flush out pipeline sections and a dump pond to accomodate slurry from the up-stream section in case of an emergency. At the destination point, the coal is prepared for use by dewatering the slurry using centrifuges and thermal drying. The carrier water is then disposed of or recycled. Coal storage and handling requirements at the end of the pipeline will vary according to the intended user of the coal. Assuming that the destination is an export coal pier in Hampton Roads, short-term storage in coal piles and coal-loading facilities similar to those at other Hampton Roads coal terminals will be required.

Water Availability

It was assumed for the BDM study that a coal slurry pipeline should not consume more than 50 percent of a waterbody's "safe yield" (30-year low flow, as defined by the Virginia Department of Health). Potential sources of slurry water were identified in each of southwestern Virginia's two major drainage basins. In the Tennessee River Basin, the Clinch River below Cleveland appears capable of sustaining a pipeline that has an annual throughput capacity of 15 million tons of coal. Extended periods of withdrawal at the "safe-yield" flow would in all likelihood adversely impact aquatic populations. Consequently, an off-stream impoundment would be needed. Prospects appear somewhat uncertain, however, for supplemental water supplies from other sources in this basin to support a larger capacity pipeline. In the Big Sandy River Basin, the John Flannagan Reservoir appears to have sufficient capacity to supply a large coal slurry pipeline, although the maximum sustainable pipeline capacity could not be determined without a detailed analysis of competing flood-control, low flow augmentation, recreational uses, and potential power generation uses. Again, prospects were found to be uncertain for other reliable and sufficient supplemental water sources.

Other sources of water were investigated, but were not found to be viable alternatives to surface waters. These were groundwater, mine drainage, deep well saline water, and sewage treatment plant effluent.

It was found that the water separated from the slurry at the end of the pipeline can be recycled. This would dramatically reduce water requirements, at a cost which would add about 15% to the annual pipeline operating cost.

3) Wastewater Treatment and Disposal

It is not possible to anticipate the precise pollutant loadings of untreated slurry water for the proposed pipeline, because the wastewater quality will depend greatly on the characteristics of the coal and source water transported through the pipeline. It is possible, however, to project the types of pollutants and general concentration levels that are likely to be in the slurry water and the associated implications for wastewater treatment and reuse or disposal.

Various laboratory studies and the historical experience of the Black Mesa coal slurry pipeline indicate that slurry water will contain pollutants that are treatable with current technology, with heavy metals expected to occur in very low concentrations. Toxics in the pipeline effluent shall be closely scutinized in the permit application process and shall have to meet very strict discharge standards. The major variable that will determine actual treatment requirements will be the quality of source water and the intended wastewater use or disposal method.

Slurry water reuse options of industrial, agricultural, municipal, and "closed loop" reuse as slurry water were considered. Each reuse option would require a different degree of treatment. A survey of potential industrial users concluded that VEPCO is the only user having sufficiently large or consistent water requirements at the present time to have potential interest in using the effluent. Agricultural water requirements appear too variable to be relied on entirely as a reuse option. Public health officials expressed concern that pipeline effluents might be too inconsistent in volume and quality to be treated for use as a municipal water supply. Reuse of pipeline effluents as slurry water, thereby avoiding wastewater treatment costs, is feasible technically, adding about 15% to annual pipeline operating costs. Treatment of slurry wastewater for direct discharge to surface waters would require application for a permit. It appears that pipeline effluents could be treated sufficiently to meet strict discharge standards which shall be established.

There is an emerging technology which could substantially eliminate most of the water issue. Liquid carbon dioxide (CO_2) has been found to be a useful fluid for transporting coal. Indeed, the developers claim some important hydraulic advantages over water. However, this technology has not been developed to the point that a judgment could be made to eliminate the use of water as a transport medium for a coal slurry pipeline. This technology may provide an acceptable alternative by the time a pipeline were actually built.

4) Pipeline Construction, Operation and Maintenance

The major pipeline construction impacts will be the clear-cutting of forested areas and land disturbance on steep grades in southwestern Virginia. In some cases, runoff and erosion from construction areas may pose short-term risks of surface and groundwater contamination. Small streams and wetlands affected by construction would also suffer short-term disruption. Both pipeline installation and site restoration will be difficult and disruptive in affected wetlands. Mitigation of these impacts during construction, and careful restoration of disturbed areas, will be required.

The major concern regarding pipeline operation appears to be the potential for pipeline ruptures and coal slurry spills. Such incidents are not considered likely to occur with any frequency, although the possiblity of a spill does exist. In general, the consequences of a spill would be insignificant. However, a spill affecting small streams or wetlands areas would have short-term impacts unless extremely sensitive or critical habitats are affected.

Operation of a coal terminal will also result in some environmental impacts that will vary according to facility design. For instance, if chemical precipitation is needed in wastewater treatment, sludge management will be required. Handling and storage of coal will result in fugitive dust emissions. In general, terminal operation impacts will be similar to those of other Hampton Roads coal terminals.

Maintenance-related requirements for access, surveillance and monitoring of the pipeline and right-of-way may pose some long-term impacts. For instance, special access roads may be required in remote areas, and some clear-cut areas may need to be reforested immediately.

b. Unit Train Impacts

The basic assumption of the study is that coal transportation requirements will increase whether by rail or pipeline. Increased coal transport by rail will impact the environment in areas of noise, grade crossing accidents and delays, and air quality impacts. These impacts were assessed by assuming a base case of 20 train operations per day and then adding an additional 7 train operations per day, which would accommodate an additional 15 MT/year coal movement. The analysis by BDM shows the feasibility of mitigating any adverse impacts.

Eminent Domain [9]

The issue of eminent domain hinges on the question of the extent to which "public use" of a coal slurry pipeline must be present to enable condemnation of private property for that purpose. The Virginia Supreme Court has consistently applied more restrictive tests to determine public use than have courts in many other jurisdictions; however, this court's decisions reveal no precise, comprehensive definition. As a general guide, the Supreme Court has observed the following:

> "The reason of the case and the settled practice of free governments must be our guides in determining what is or what is not to be regarded as a public use; and that only can be considered such where the government is supplying its own needs, or is furnishing facilities for its citizens in regard to those matters of public necessity, convenience or welfare, which, on account of their peculiar character and the difficulty, perhaps impossibility, of making provision for them otherwise, it is alike proper, useful and needful for the government to provide." Light v. City of Danville , 168 Va. 208-209(1937).

Fallsburg & Co. v. Alexander , 98 VA. 101 (1903), is the landmark case in this State. It is most often quoted as stating the fundamental public use requirements for condemnation in Virginia:

> "First, the general public must have a definite and fixed use of the property to be condemned, a use independent of the will of the private person or private corporation in whom the title of property when condemned will be vested; a public use which cannot be defeated by such private owner, but which public use continues to be guarded and controlled by the general public through laws passed by the Legislature; second, this public use must be clearly a needful one for the public, one which cannot be given up without obvious general loss and inconvenience; third, it must be impossible, or very difficult at least, to secure the same public uses and purpose otherwise than by authorizing the condemnation of private property." Id. at 101.

Fallsburg prescribes the test to be applied in cases "other than those in which the general public have the immediate use of the property condemned without charge as in cases of public highways," distinguishing a class of cases in which private persons or corporations may condemn private property. Id. at 103-104. It acknowledges that the public's use and benefit may be limited and qualified under certain circumstances, and is, therefore, the test by which the Supreme Court measures the legality of condemnation for the benefit of industrial or commercial interests.

The first element of the Fallsburg test, that the public's use must be definite, fixed, and protected by legislative safeguards, is the most important element to consider in any proposal, and the one most frequently construed by the Supreme Court. It does not mean that the entire public must be served by or have access to facilities on the condemned property, as in the case of a public highway. Moreover, it does not mean that private interests may not enjoy certain benefits incident to the public taking of private property. As Fallsburg and subsequent cases illustrate, the public interest must be predominant , while some incidental private uses and interests are permissable.

There are a number of cases which have dealt with a variety of issues surrounding the application of "a definite and fixed use", the first element of the Fallsburg test. The other two elements of the Fallsburg test are more easily defined and thus have not presented the problems of interpretation surrounding the first element.

One Virginia case, Peck Iron and Metal Co. v. Colonial Pipeline Co. , 206 Va. 711 (1966), presents the closest analogy to that of a coal slurry pipeline. Assuming that a coal slurry

pipeline would be functionally similar to the Colonial Pipeline facility, the Peck case provides ample precedent for providing the framework within which statutory safeguards for conferring eminent domain could be constructed.

In the review of this issue for the Joint Study Committee, the Office of the Attorney General suggests that the State Corporation Commission's regulation of public service corporations, including common carriers, provides a basis for enacting legislative safeguards which the Court has found persuasive. However, this does not require chartering as a public service corporation or operation as a common carrier; rather if it is so chartered and operated, pursuant to legislation authorizing the SCC to regulate its use, case law suggests that judicial muster will have been met.

Noted earlier was the fact that two coal pipelines have been built, one is still operating, and numerous ones are proposed. The pipeline developers of the Cadiz pipeline built in Ohio had the power of eminent domain, but it was not actually used since rights-of-way were successfully negotiated. On the other hand, the Black Mesa pipeline was built without having the right of eminent domain available to the developer. Here, too, rights-of-way were successfully negotiated, although at one point political leverage was used to force the Santa Fe Railroad to negotiate one crossing. The ETSI pipeline negotiated rights-of-way along its 1500 mile length by long and arduous judicial pathway without the right of eminent domain.

Interbasin Transfer of Water [10]

At common law in Virginia, rights in the waters of a watercourse are governed by the riparian rights doctrine. Under this doctrine, the riparian owner has a right to the reasonable, beneficial use of water flowing through or by his land. A riparian owner is an owner of land which abuts or adjoins a watercourse and lies within the watercourse's watershed or basin. The principal issue in the use of surface water for a coal slurry pipeline is whether such use is unreasonable, since the water will not be used on riparian land, and if so, whether a downstream riparian owner is entitled to relief in the absence of damage.

There are numerous instances in Virginia of the withdrawal of water for use outside the watershed. There are a few instances in which such a withdrawal has been challenged by a downstream riparian owner on the basis of his suffering damage. In those cases in which damage has been established, the courts have ordered settlement with the downstream riparian owner.

The latest finding on this issue was a 1972 opinion by the Attorney General (Attorney General Andrew Miller to the Honorable Thomas J. Rothrock on April 25, 1972). This opinion offered the conclusion that "an interbasin transfer of water constitutes, by definition, a diversion of water beyond riparian property, (and) any such interbasin transfer by a riparian owner would be unlawful at common law, although the lower riparian owner is not entitled to relief from such a diversion in the absence of injury."

Effect of Federal Action

The issue of granting federal power of eminent domain has been before Congress several times and has been defeated each time. The most recent instance was in the House of Representatives in September, 1983, by a margin of 235 to 182. This margin effectively kills the issue this year, but it is very likely that there will be future attempts.

Any federal action would have pre-empted the Virginia prohibition for eminent domain use for coal slurry pipelines found in § 56-49. The result of the federal inaction, then, is to focus attention on Virginia. Examination of a map of the East Coast shows that Virginia holds the key to all presently viable eastern coal shipping ports for West Virginia and a good portion of Kentucky. A recent study in West Virginia found the most attractive pipeline route from that state originated in the Beckly vicinity and terminated at Hampton Roads.

At present then, the prohibition in the Code of Virginia effectively blocks construction of coal slurry pipelines from Central Appalachian coal fields, in that eminent domain is not available to the developer. Of course, if the developer can acquire rights-of-way through negotiations, such a pipeline could be built.

New Technology

An emerging technology known as coal-water mixture (CWM) fuel may have an impact on pipeline transportation of coal. The difference between CWM fuel and slurried coal for transport is that CWM is a fuel that is directly fed to burners, while coal must be dewatered for the dry coal to be burned. This property of CWM fuel is the result of loading the liquid system with up to at least 70 percent coal in a stable mixture with very finely ground (much finer than the coal found in the slurry for transport only), clean (low ash) coal.

CWM mixture competes with No. 6 fuel oil and not with traditional coal consumption. Therefore, any market developed for CWM will be a new market for coal. This market development is the chief obstacle to be overcome for this product. The potential users of CWM need to be assured not only that the product will perform in their application equivalent to the present fuel at an economical advantage, but also that the product will be available for the life of the application. On the other hand, the potential suppliers of CWM are hesitant to commit capital to build plants large enough to supply users until they are certain that purchase contracts are likely to be signed. It is likely that this barrier will be resolved, but projections of the timing are not clear.

It is quite likely that the early applications of CWM will avail themselves of existing transportation modes. Coal will probably be shipped by rail to the coast, be further processed there to CWM and then shipped by barge to point of application, e.g., coastwise electric utilities. As the market expands, and it certainly will due to the economic leverage of CWM, and as users proliferate, it is likely that pressure will mount to distribute CWM in pipelines just as petroleum products are distributed.

Findings

The data acquired by the Study Committee and summarized in the foregoing Results section are adequate to supply the information necessary to answer the questions posed by House Joint Resolution 117. The Study Committee was charged to study the feasibility of establishing a coal slurry pipeline and the utilization of Virginia coal and to make a determination of whether such a pipeline should be allowed the use of the power of eminent domain. The resolution requested information concerning technical (engineering viewpoint), economic, environmental and legal issues which provide the basis for making this determination. The answers to questions posed by the resolution and those added by the Study Committee as being necessary to the complete examination of the subject constitute the findings of the Study Committee.

Is there a public need for additional coal transportation facilities?

There are really two questions covered in this question.

1. Is there a need?

2. Is there a public need?

The first question is essentially a marketing question and the second expands the first to include legal and constitutional components. In the context of this study, i.e., markets related to coal slurry pipeline transportation, only steam coal is considered.

Virginia coal interests will have a signigicant potential for marketing coal for steam generating purposes over the next thirty years. Forecasts indicate as much as a five-fold increase before the turn of the century, all representing new markets since Virginia currently supplies relatively small amounts of steam coal. Virginia's coal reserves and potential production capacity are adequate to meet the pipeline related demand, provided that the delivered price remains competitive. These new coal markets represent opportunities for expanded transportation capability and expanded coal production if delivered cost is competitive. Competition in coal transportation may help to achieve this result. Present rail coal transportation facilities can be expanded to meet the increased demand. At the same time, the transportation needs could be served by a coal slurry pipeline up to a capacity of about 25 million tons/year.

The question of "public" need is part of the larger question of eminent domain to be discussed below and relates to the service performed and benefit derived from supplying the facilities to meet the demand generated need.

What is the potential impact of a coal slurry pipeline on the environment?

There are significant environmental questions raised when considering construction and operation of a coal slurry pipeline. Definitive answers cannot be supplied until such time as a specific proposal is put forward, since the natures of coal, water source, and route are quite diverse and therefore defy generalization. However, the barriers have been identified and sufficient information collected to suggest ways to overcome the barriers. The chief environmental question is water - its availability at the beginning of the line and its disposal at the end. Water of sufficient quantity and quality has been identified in the vicinities expected to be prime candidates for beginning the pipeline. Likewise, disposal of the water at the end can either be accomplished by treatment and discharge into surface waters or reused in a cooling water application at a VEPCO generating station. Conditions of discharge cannot be fixed since the actual system would have to be permited, and the specific nature of the effluent would have to be known to any industrial user. Nevertheless, these questions apparently do not present insurmountable barriers. The water issue would be substantially mitigated by recycling, albeit at added cost of transport.

Similarly, construction, operation, and maintenance of a pipeline does not present insurmountable obstacles but would have to be permitted on a case-by-case basis.

Overall, a definitive finding of environmental acceptability is possible only for a specified case. However, existing regulation and technology appear to be adequate to reduce the negative impacts to a level acceptable to regulatory authority.

What is the impact on the financial health of railroads, on rail and other employment, and on rail rates for non-pipelineee shippers of coal and other commodities?

A coal slurry pipeline competing for the transportation of steam coal could have several economic impacts. To examine these impacts, it is necessary to recall that the quantitive evaluations made in this study are all based on the incremental production of steam coal, i.e., coal that is not currently produced. Therefore, the competition considered is between pipeline and rail for new business and does not represent any loss of current employment or revenue.

To make meaningful comparisons of economic impacts, it is necessary to make assumptions about market shares. For a base case, it is assumed that there are 15 MT of steam coal to be shipped, that there is in place a 15 MT/YR pipeline operating at capacity, and further, that the incremental steam coal market demand has increased by 10 MT/YR. This represents a scenario in which the pipeline has "captured" 5 MT/YR of coal traffic from the railroad. This is the so-called "lost tonnage" scenario. The impact of this 5 MT/YR on Norfolk Southern would represent about 140 employees and about $77.5 million in revenue. Further, the tonnage lost to the railroad would impact ingathering and secondary employment to result in a total employment impact of some 411 jobs at an estimated yearly compensation of more than $8 million. (Note: should the tonnage change be different than 5 million tons, the figures would change proportionately.) To carry 15 MT/YR by pipeline would require about 935 employees earning approximately $19 million per year and the pipeline corporation would realize the revenue for shipping. However, the largest impact by far would result from the increased coal production which would have to be realized before such a pipeline would even be considered. For an additional 10 million tons of coal, it is estimated that more than 6,500 workers would be employed in addition to the revenue generated by the coal sales. It must be pointed out that the railroad could carry the 15 million tons of coal which would have an identical impact on coal production economics and, in addition, would require 1,226 new railroad employees at an annual total wage of almost $25 million. This comparison presupposes direct competition of pipeline and rail transport which can be expected to have an effect on transportation costs, probably by lowering such costs. However, in the absence of such competition, there is no strong incentive for the railroads to lower their tariffs which in turn may impede growth in coal demand.

Other potential economic impacts are possible for utility customers and non-pipeline shippers of coal or other commodities. Here again, assumptions are necessary to provide bases for

making economic comparisons. To measure the impact on electric utility customers, assume that VEPCO will use 6 MT/YR of pipeline transported coal at a savings of $4/ton. Measured in 1983 dollars, this savings would translate to $7.62 per residential customer when spread across the entire residential customer base. For the impact on non-pipeline shippers, the same assumptions are made as for the impact on Norfolk Southern employment and revenue above. The impact of a $77.5 million revenue change equates to about a 0.4% change in rates when spread over the total revenue base of the railroad.

What is the effect of Federal legislation?

In September of 1983, a federal bill was killed by the House of Representatives, and at present there are no coal slurry pipeline bills before Congress.

What is the impact of new technologies on transportation of coal by slurry pipeline?

Two new technologies have been considered by the Study Committee. The use of liquid carbon dioxide as a transport medium rather than water is currently under development. There is no commercial use presently made of this technology, but considerable promise is shown. Some significant economies are claimed for this technology and, of course, the environmental impacts would change considerably should carbon dioxide prove to be a feasible replacement for water. However, the state of development does not allow a forecast of success as far as this study is concerned.

Another technology related to coal slurry transport is that of coal-water mixtures for use as fuel. This technolgy is quite attractive from the standpoint of the potential of opening a large new market for coal as a direct replacement for No. 6 fuel oil. The use of coal-water mixtures is not a transportation issue but rather a question of long-term combustion testing. Here again, the state of development precludes prediciton of impact.

How does the riparian doctrine governing use of water in Virginia impact the coal slurry pipeline issue?

There is a legal question concerning the use of water for transporting coal in a slurry pipeline. The question arises from the situation in which water would be removed from a source in a coal producing region, used to transport the slurry to the Tidewater end of the line, removed from the slurry and discharged or used in that vicinity. The legal question in that case is whether the use of water as described is an unreasonable use and, if so, does a judicial challenge depend on a finding of damage to a downstream owner. Case law on this point is limited and each case has been decided on the facts as they obtain in that particular situation. The Study Committee indicated that the coal slurry pipeline issue was not a suitable forum for challenging the riparian doctrine of the Commonwealth. Should such a pipeline development move forward, it would have to do so under existing riparian doctrine.

The remaining questions posed by the resolution deal directly with the issue of eminent domain. The legal aspects of the eminent domain issue are two-fold, statutory and constitutional. The Code of Virginia currently prohibits the granting of the power of eminent domain for any activity leading to operation of a coal slurry pipeline (Section 56-49). This prohibition could, of course, be removed by action of the General Assembly. The constitutuional barrier results from the conditions set out in the Constitution of Virginia to protect the citizens from unwarranted taking of property. The key issue in the constitutional barrier is whether the transportation of coal in a slurry pipeline is a "public use". There is considerable case law [e.g., Fallsburg & Co. v. Alexander , 98 Va. 101 (1903)] on this issue which provides the guidelines under which limitations, standards and restrictions on the use of eminent domain can be written with the intent of meeting the constitutional test. Of course, the final determination will be made by the courts.

What limitations should be imposed on the use of the power of eminent domain exercised for the purpose of constructing and operating a coal slurry pipeline?

There are a number of limitations on the use of the power of eminent domain that have been brought before the Committee during the course of the study. Some of these limits can readily be accomodated in the certification process, some are more general in nature and should

be considered for any grant of eminent domain power to any coal slurry line.

The limitations on the power of eminent domain that have been considered are listed.

a. It cannot be used to acquire water rights.

b. It should be used to acquire easements only and not fee simple ownership.

c. The pipeline corporation should consider existing public service corporation easements and highways in plotting the pipeline route. (Note: Section 56-259 of the Code addresses this issue.)

d. Routing decisions concerning above ground, adjunct facilities should conform to local zoning and land use ordinances.

What standards or restrictions should be applied to coal slurry pipelines to qualify for right to exercise the power of eminent domain?

There was no question but that the company seeking to build a coal pipeline would have to incorporate and operate as a public service corporation. The ownership of the pipeline corporation should be such that no other public service corporation would hold more than a 49% interest. There was mention made also that foreign ownership should be forbidden, and that the 49% ownership interest restriction should be extended to all owners.

A public service corporation can be required to furnish certain evidence and data to the State Corporation Commission to obtain a certificate of public convenience and necessity in order to be empowered to exercise the right of eminent domain. This certification process is a convenient vehicle for detailing requirements for such items as routing, environmental protection, definition of service area, and economic sectors (coal operators, ports, consumers) served, and it can include provisions for public comment. The Study Committee indicated that this sort of process would be desirable for any coal slurry pipeline development.

Over the course of the study, many sources indicated the desirability of a CSP offering preference to Virginia coal interests. The Study Committee indicated that such a preference should be expressed if an appropriate means for doing so could be devised.

The Commerce Clause of the U.S. Constitution vests in Congress the exclusive power to regulate interstate commerce. Attempts by the states to impede the flow of commerce across their borders, absent congressional approval, are generally held unconstitutional. Attempts to restrict the transportation of natural resources to intrastate commerce by domestic corporations clearly violate this rule. West v. Kansas Natural Gas Company , 221 U.S. 229 (1911).

A state is not, however, prohibited from enacting laws and regulations which only incidentally affect interstate commerce. The U.S. Supreme Court applies the following rule in such cases:

> "Where the statute regulates evenhandedly to effectuate a legitimate local public interest, and its effects on interstate commerce are only incidental, it will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefits. Pike v. Bruce Church, Inc. , 397 U.S. 137, 142 (1970).

The Court will also inquire whether alternative means could promote the local purpose without discriminating against interstate commerce.

When this rule is applied to legislation enabling a coal slurry pipeline in Virginia, a sufficient local interest would probably be satisfied by the economic benefit to the Virginia coal industry and the coal producing counties. The more difficult task is to structure a statutory or regulatory limitation which will foster this local interest, yet only incidentally affect the interstate transportation of coal. A number of options might be considered.

First, the public service corporation which operates the pipeline may be required to solicit Virginia coal producers, without being prohibited from accepting foreign shipments. An affirmative duty to solicit local customers has virtually no regulatory effect on interstate commerce as long as foreign producers may contract to ship their coal on an equal basis.

Secondly, a service area around the point foreign of the pipeline might be defined. The pipeline operators would be required to serve the coal operators within this primary service area on a first-come, first-served basis within the capacity limits of the pipeline. Third, the coal slurry pipeline maybe defined as a facility having its origin and destination within a certain geograpic area of the State. The Supreme Court has not specifically considered such a limitation, although a good argument can be made that it would comply with the rule in Pike v. Bruce Church, Inc. Even though the point of origin would not encourage interstate shipments, the pipeline would still be available, on an equal basis, to all coal producers, domestic and foreign. Likewise, any company, regardless of its domicile, would be entitled to construct and operate the pipeline as a public service cororation, but only in the permitted location. The limitation, therefore, would be solely as to the facility's location, and it would be available for use, on an equal basis, for interstate and intrastate shipments.

A difficult issue faced in structuring a properly regulated corporation for operating a coal slurry pipeline is that of common carriage. What constitues a common or a private carrier is a question of law, but whether a carrier is actually serving as a private, rather than a common, carrier is a question of fact.[11] The dominant and controlling factor in determining the status of one as a common carrier is his public profession or holding out, by words or by a course of conduct, as to the service offered or performed, with the result that he may be held liable for refusal, if there is no valid excuse, to carry for all who apply.[12] The issue of carriage obligation is complicated by the business climate within which the pipeline will operate, i.e., contracts with shippers while maintaining reasonable access to the line.

Pipelines are built to carry only one commodity (e.g., oil, gas, coal), have a capacity limit, and serve only a fixed route. These facts mean that "common carrier" status for a pipeline is different from carriers not having such limitatons. Since Virginia has never been faced with the need to accomodate this transportation form within her regulatory framework, new concepts and definitions have to be devised.

Nevertheless, the consensus of the Study Committee was that carrier obligations must be imposed on a coal slurry pipeline. The key issue is the access to the line. Particular concern has been expressed for the so-called small operator. This issue should be dealt with by statute and not left to regulatory authority for resolution.

Any coal slurry pipeline corporation chartered as a public service corporation would be subject to rate regulations by the State Corporation Commission under Title 56 of the Virginia Code unless specifically exempted. Long-term contracts will almost certainly be necessary for the succesful operation of a coal slurry line, and this fact should be taken into account in the regulation of rates.

The Study Committee thoroughly studied each of the questions posed by HJR 117 and those raised in the course of the study. The findings of the committee constitute a solid foundation on which decisions can be made as well as a well documented data base for all who wish to study the issues surrounding CSP development in Virginia.

Conclusion

The General Assembly asked the Study Committee authorized by HJR 117 to study the feasibility of establishing a coal slurry pipeline in Virginia. There were four aspects of feasibility considered by the Study Committee: technical, environmental, economic, and legal. A careful review of the findings of the study showed

- That a coal slurry pipeline is technically feasible.
- That sufficient environmental safeguards can be provided to achieve standards set out by appropriate regulatory authorities to adequately protect the environment should such a pipeline become a reality.
- That the economics of any such pipeline venture should be left to the private sector.
- That the legal requirements necessary to allow development of coal slurry pipelines can be met.
- That competition in the transportation of coal by public service corporations ought to be encouraged by the laws of the Commonwealth.

Therefore, the Study Committee concluded that the prohibition against the use of the power of eminent domain for the purpose of acquiring any lands or estates or interests therein nor any other property for the construction, reconstruction, maintenance or operation of any pipeline for the transportation of coal should be repealed. Furthermore, any grant of power of eminent domain to a coal slurry pipeine corporation should be limited and restricted as discussed in the Findings section of this report. The Study Committee voted 9 - 2 in favor of a motion embodying this conclusion.[13] The Committee further recommended that a bill draft be prepared to implement its conclusion. This draft is found in Appendix D.

Respectfully submitted,

Owen B. Pickett, Chairman

Peter K. Babalas, Vice-Chairman *

V. Earl Dickinson

W. Tayloe Murphy, Jr.

Charles C. Lacy

Clinton Miller *

Howard P. Anderson

John C. Buchanan

Joseph A. Johnson

Dr. Ronald E. Carrier

Gerald T. Halpin

* Do not approve report. The dissenting statements follow the footnotes.

Footnotes

1. Memorandum from Bernard Caton to the Members of the Joint Subcommittee studying coal slurry pipelines dated August 16, 1983, on the subject: Legislative History of Chapter 222 of the 1962 Acts of Assembly.
2. Chapter III and IV of BDM report. Each sub-heading in the Results section is footnoted to reference the chapters of the BDM report which contain the data used to prepare the discussion of each topic.
3. Chapters V and VI of BDM report
4. The details of this calculation are to be found in Chapter VI and VII of the BDM report
5. Throughout this report, the symbol MT will designate million tons
6. Wall Street Journal - September 16, 1983
7. Chapter VIII of BDM report
8. Chapter IX, X, XI and XII of the BDM report
9. Letter and attachment from J. Westwood Smithers, Jr., to The Honorable Owen B. Pickett, dated September 19, 1983.
10. Letter and attachment from William R. Walker to Dr. Don L. Shull, dated November 4, 1983
11. 13 Am Jur Carriers § 8 (1964)
12. Ibid., § 1
13. Voting for: Anderson, Buchanan, Carrier, Dickinson, Halpin, Johnson, Lacy, Murphy and Pickett
    Voting against: Babalas and Miller

THE DISSENTING STATEMENT OF THE HONORABLE PETER K. BABALAS

House Joint Resolution 117 charged the subcommittee with the duty to formulate plans for the greater utilization of Virginia coal. The plan adopted by the subcommittee does exactly the opposite. The coal slurry pipeline legislation proposed by the majority, is a many faceted insidious plan that bodes ill for every citizen and every community in the State of Virginia.

Prior to the introduction of this bill, I believed that the writhing, serpentine Medusa was buried in the ancient lore of Greek mythology. Now we are faced with an ugly, industrial Gorgon whose tentacles invade the home, the economy of this great State, the basic environment, and indeed reaches into the sacred constitutional privileges of us all (eminent domain).

The first tenacle strangles the producer of Virginia coal, because almost all of Virginia coal is of metallurgical quality and commands a premium of twenty to thirty dollars per ton; very little steam coal is produced in this State. Yet, only steam coal can be conveyed in a coal slurry pipeline! Thus, the high quality Virginia coal is at an instant economic disadvantage. Conversely, Kentucky and West Virginia have vast reserves of steam coal! These reserves lie in a region far north of the Virginia fields. The proposed bill states, "The Western starting point shall locate and the pipeline itself shall be routed so as to serve existing Virginia coal facilities." Therefore, I say a coal slurry pipeline originating in West Virginia, which has the right of eminent domain, could not be stopped from entering the proposed line in Virginia, or its own line direct from West Virginia, because any imposed restriction would be in violation of the Interstate Commerce Clause. Article 1, Section 8, Clause 3 of the U. S. Constitution (the commerce clause) grants

to the Congress the power "to regulate commerce among the several states." This power of Congress to regulate interstate commerce is exclusive:

> By the Constitution, Article I, section 8, clause 3, the power to regulate interstate commerce is expressly committed to Congress and therefore impliedly forbidden to the state. The purpose of this is to protect commercial intercourse from insidious restraints, to prevent interference from conflicting or hostile state laws, and to insure uniformity of regulation. Pennsylvania v. West Virginia, 262 U.S. 562, at 596 (1923).

None of the four major proponents for coal slurry own coal in Virginia. Three have vast holdings that compete with Virginia coal operations, and Royal Dutch Shell, which calls the shots for A. T. Massey, is the primary competition for Virginia coal worldwide. Since the consortium of A. T. Massey, Transco Energy Company, VEPCO and Baltimore Gas and Electric have massive holdings in West Virginia and Kentucky, it is logical to assume that another serpentine arm will stretch out from the proposed pipeline to the fat holdings of the consortium in the West Virginia coal fields. This sinuous move would further strangle our own coal producers. BDM cautions further, "if a West Virginia coal slurry pipeline were implemented, there is little doubt that the market for southwest Virginia coal would suffer, unless the State of Virginia imposed, by legislation, requirements for the use of Virginia coal in an intra-state pipeline." (BDM I-8.) The fact is, the Virginia General Assembly cannot legally restrict the use of the intra-state pipeline to Virginia coal!

> WEST v. KANSAS NATURAL GAS COMPANY 221 U.S. 229 (1911).

The U.S. Supreme Court, page 229, said:

> 2. Prohibiting the construction of pipe lines for natural gas, or the transportation of the gas by such lines except by domestic corporations, whose charters shall provide that the gas only be transported between points in the state, and shall not be transported to, nor delivered to, any person or corporation engaged in transporting or furnishing gas to points outside of the state, and giving to such domestic corporations the exclusive right of eminent domain and the use of the highways, all of which is attempted by Okla. laws 1907, chap. 67 unconstitutionally interfere with interstate commerce, and cannot be justified as an exercise of the police power of the state to conserve its natural resources.

At page 718, the court further states:

> The rule that a state has the power to exclude a foreign corporation from doing business within its territory does not apply to foreign corporations which are engaged in interstate commerce. The state may not exclude such corporations, or demand a license, or directly burden or interfere with their interstate business.

Therefore, though it is stated in the proposed Bill:

> 3. The Western starting point shall be located and the pipeline itself shall be routed so as to serve existing Virginia coal facilities.

This Bill would be unconstitutional.

We cannot overlook the fact that the clear intention of the consortium is to extend other insidious tentacles from their holdings in West Virginia and Kentucky, into the proposed Virginia pipeline, to the further detriment and stifling of the southwestern Virginia coal producer.

In the Kansas case, page 720, the court said:

> "In matters of foreign and interstate commerce there are no state lines." U.S. 221, 720 55 L. ed.

The court, at page 727, stated:

> (1). Natural gas is as much a commodity as iron ore, coal or petroleum or other products of the earth, and can be transported, bought, and sold as other products.
> (2). It is not a commercial product when it is in the earth, but becomes so when brought to the surface and placed in pipes for transportation.
> (3). If it can be kept in the state after it has become a commercial product, so may corn, wheat, lead and iron. If laws can be enacted to prevent its transportation, a complete annihilation of interstate commerce might result.

Also, legal counsel from both the Attorney General's office and the State Corporation Commission have advised the subcommittee that Virginia cannot enact legislation granting eminent domain for a coal slurry pipeline that denies its use or hook-on lateral line, or lines from West Virginia or Kentucky. The pipeline can never be exclusive to Virginia.

As Vice Chairman of this study, I have requested from the beginning a drawing of this coal slurry snake. Where will it specifically begin? How will it snake its way through Virginia? How many pumping stations, and distance between each pressure pump? How many sludge ponds? What happens if the line cracks? Where does it terminate? What does it look like? So far, the proponents have failed to give me the specifics. I have asked for specifics. Where do you get the water at the beginning, and what happens to the coal water filthy sludge mixture at the end?

Again, nothing but generalities. I, nor the people of Virginia, should buy a poisonous snake on the assumption "if" technology is approved we can take the venom out of the snake or snakes. They fail to state in the majority report, except one time, that a sludge pond of 2000 acres would be required at the end of the snake. The poison mixture of coal dust and water will sit in a 2000-acre pond, seeping its poisons into the precious underground water strata for several years, or sooner, when it can no longer be absorbed by the ground; like a septic tank that no longer permeates. Then the proponents have to find another 2000 acres sludge septic pond tank. I have asked where in Norfolk and Portsmouth it is possible? They don't have the required ground. Therefore, at the terminus, to accommodate the VEPCO Portsmouth generating plant, they would have to go to Chesapeake and Virginia Beach. Can you imagine, for centuries Tidewater would be portrayed from the air and ground as the home of poison ponds.

Can you imagine 2000 acres covered with a two-inch depth of sludge? Try to imagine downtown Richmond from the State capitol, bordered by Broad Street on one side and Canal Street on the other, running out for a distance of almost eight miles to Pemberton Road, covered with a two-inch layer of black sludge? Yet, this is what is recommended in BDM as a "land application system," "at the maximum loading rate of two inches per acre per week." (BDM X-45). Can you imagine the stench arising from this vast septic tank? We cannot take the chance! Also, as stated in BDM (X-28), "At this time, it is only possible to make very general observations with respect to the potential degree of contamination in a coal slurry wastewater. Based on information available in the literature and studies in progress, the following parameters can

be identified as potentially significant constituents in coal slurry wastewater:

Total Dissolved Solids	Lead
Hardness	Magnesium
Sulfates	Mercury
Calcium	Nickel
Chromium	Selenium
Cadmium	Sodium
Iron	Arsenic
Maganese	

Of these constituents, the dissolved solids, hardness, sulfates and calcium have been present in large concentrations. Iron and maganese may be expected to be present in high concentrations for Virginia coal slurry wastewater" (BDM X-28). At this state of consideration, it is contemplated that the first 2000-acre sludge pond be located in the vicinity of the VEPCO powerplant in Portsmouth because, "the only significant water user is the VEPCO Portsmouth Power Station" (BDM X-30). Presently, "The cooling system at the Portsmouth Power Station uses a flow through process where a large volume of water is used to cool the plant. According to State Water Control Board records, approximately 350 million gallons of cooling water is discharged daily from the Portsmouth Power Station" (BDM X-31). This is chlorinated and discharged back into what was formerly the brackish Elizabeth River, now fresh water and polluted. VEPCO indicated that "they might be interested in utilizing the slurry waste-water if the water quality were acceptable and if it were economically advantageous for them" (BDM X-31). Another "if" in a long sequence of "ifs" that weave like the coils of a serpent

through this entire pipeline proposal by the majority opinion. Presently, there is only one operating slurry pipeline in the United States. This line, in Black Mesa, Arizona in the unpopulated desert has been in operation for fourteen years and carries upwards to five million tons a year to the Edison Plant in Mohava, Nevada. The coal water sludge is dried out by the sun. There is no parallel railroad track in the area! However, where tracks exist, already in place, such as we have in Virginia, a slurry line does not become competitive with rail until it transports fifteen million tons of coal per year! Consequently, the projected consumption of six million tons of coal per year, by VEPCO in 1990, will not make the pipeline competitive to rail transportation!

A close analysis of BDM shows that VEPCO will have to pay more not less, for hauling coal, if it goes the pipeline route! The majority report is predicated on an "if" that does not and cannot exist in showing the six dollars per year savings, per customer, for VEPCO. This cost savings is based on the annualized capital cost of the pipeline being $643,171,000.00 (Table VI-4, BDM, Page VI-21). Already, the Virginians for Competitive Coal are circulating a paper showing this cost in the $950,000,000.00 range. Based on the rising price of material and labor, I believe this figure to be conservative. If construction were begun today, the end cost of this proposal would be well over a billion dollars at the time of completion. Have we not learned a lesson in the continuing cost overruns by VEPCO? As reported in the Richmond Times Dispatch, Wednesday, January 18, 1984, VEPCO has built four nuclear reactors and their final construction costs were 116% greater than early

estimates for the North Anna and two Surry reactors. Actual costs for the reactors were a total of almost $1 billion more than the company estimates! We cannot disassociate this coal slurry pipeline proposal from VEPCO's performance in energy. The consumer has already been asked to pick up the losses from the shut down of the North Anna plant and all previous overrun costs.

The majority report makes note of the fact, "if the railroads felt a direct threat of competition for a particular shipper's traffic, it is also likely that they would reduce their tariffs substantially to underprice the pipeline." Certainly the railroads would react, even as you and I, as business men, to protect the billions they have invested in a successful, proven and on-going competitive business! For example, in the middle fifties, the first commercial coal slurry pipeline in the United States was put into operation, in the State of Ohio, to serve the Cleveland Illuminating Company. This line, the Cadiz line, remained in operation and was shut down when the competing railroads met the pipeline rates and put it out of business. Can we expose the potential bondholder to a debacle as just took place in the State of Washington? This entire proposal is a scheme of blackmail to get the railroads to lower their rates now! In the interim struggle between these two titans, the pipeline consortium and the private railroads, the small Virginia coal producer will suffer because their coal could never reach the pipeline. The citizens of this State stand to lose by eminent domain, a constitutional privilege.

BDM and the majority opinion refers to riparian rights (water) and the damage to downstream property owners. The Virginia law is against compensation to the downstream property owners. The majority report and proposed Bill refers to eminent domain only to the right to condemn easements. Does the majority believe we are stupid - a taking is a taking, whether fee simple title or an easement.

Neither side will disclose how much the railroads have dropped their rail price to VEPCO. They are prohibited by the Federal Staggers Act from disclosures but rumor has it the rail price has dropped $3.00 to $4.00 per ton - from $16.00 to the neighborhood of $12.00 per ton. Think of that coal broker who charged $4.00 per ton just for an introduction. I will write more about him later.

The impact on the ecology will be deep as the coils of struggle grow ever tighter. In addition, the majority report (p. 15) takes note of the fact that "It is impossible to know ahead of time what the actual scenario would be; however, the specifics of a given scenario are not as important as the relative range of the economic impacts that could be expected to occur."

I have written about the sludge ponds. The other method set forth by the majority, by innuendo, is to dump the purified sludge water into the Elizabeth River. However, no known technology exists, as is stated in BDM. So therefore, another "if" as is also pointed out in the Rule report done by Old Dominion University Applied Marine Research Laboratory. The majority report sets down "if" proper regulations and "if" agencies concur. I have seen too much power politics to enact bad legislation and leave to future "if" proper regulators approve. I know

too about the "big boys" made famous by former Lt. Governor Howell.

These venomous snake lines will either have added other snakes to one line coming from West Virginia, picking up some Virginia steam coal by an add-on snake, then proceed across Virginia with the danger of bursting pipe lines, snake through Chesterfield, Portsmouth, Chesapeake and Virginia Beach, then snake southward through North Carolina to Morehead City to ship the coal dust, or as the majority refers to, a coal-water mixture similar to fuel oil #6, still experimental. From Portsmouth northeasterly, other snake lines would proceed along the bay to Yorktown, north to Possum Point near Alexandria and Fairfax County. Can you imagine the 2000 acres sludge ponds and the "iffy" technology to clean the poison water so it can be dumped into Chesapeake Bay and its tributaries? All of this dangerous poison will be handled on an "if" technology is developed. Based on the previous horrible track record of the regulators who regulated nuclear plants, and approved them, I cannot chance the future of our environment nor can you legislators take that chance either. Just look at VEPCO's horrendous record and who is paying the price - our consumers. I am not concerned about the economic sense to investors to buy or invest in this project. Everyone under American capitalism has the right to go broke in a venture. However, when VEPCO or its parent, Dominion Resources, endorses those bonds and the bonds go in default, who will pay for the default? The same worn out, used VEPCO consumer.

I call the majority opinion pure outright blackmail against the railroads. Let us call it as it is. The railroads privately owned cannot stay in business for long if the overseas market cannot afford our coal. The railroads will have to drop rates for the hauling of

coal; all of them, the producers and brokers too. In one case in litigation I know of a $4.00 per ton claim for brokerage fees on a million tons. The good times were rolling until 1982 for all segments of the industry. If you went to the coal fields you would either be run over by Cadillacs or jets or big expense accounts. At Norfolk, the ships were backed up and all involved in coal were living high on the hog. Those days disappeared with the recession and competition from overseas. Therefore, rather than attempt blackmail, threaten to create these poisonous snakes of coal lines (for the bill proposes by inference more than one coal line) let the coal side and the railroad sit down, and, as reasonable people cut their expenses from the days when the good times were rolling. Let them leave enough for all sides, but arrive at prices from mine, to broker to rail to fight the competition from abroad. Remember, VEPCO is protected by the State Corporation Commission. It is guaranteed a rate of return for its stockholders. VEPCO spends stupidly knowning that the State Corporation Commission will pass it on to the consumers. The railroads on the other hand are private and the Norfolk & Southern and CSX are the envy of the country. They are not subsidized by the State Corporation Commission. If they fail the stockholders take the loss. If VEPCO fails it calls on the State Corporation Commission to pick up their losses by passing it on to the consumer. Ask yourself which is the best business entity, VEPCO or the railroads. Ask yourself who pays taxes to Virginia, VEPCO or the railroads. The answer is the responsible private corporations - the railroads. I will not write about that heartless economic giant, Royal Dutch. Just look at the

harm they have done to the world with their cartels and control of governments - look at what harm they have caused to Southeast Asia. I hope you my fellow legislators will not allow them to own Virginia.

I also want to point out the final damage to Tidewater. The coal slurry lines will bring the stockpiling of dust-like "fine" particles, to be stored in mounds, for shipment by barge. As pointed out in the BDM report, these mounds of coal dust will have to be treated by chemical process to prevent it from covering, in black soot, the Tidewater area and wherever the winds take it. I guess they don't care about the coal miners black lung disease being given to Tidewater. Can you imagine those black coal poisonous dust clouds hanging over Tidewater. It will make the atom bombs over Nagasaki and Hiroshima look like powder puffs.

I cannot vote for the legislation and I ask all of you, regardless of your own special district interests, to look through this "iffy" report and bill, and vote your conscience for the benefit of all of Virginia, the future and the poison that will occur to our future generations long after we have left this general assembly - known for its caution before proceding. Don't be fooled that "if" technology and "if" regulators call it safe; the regulators' track record is dismal. Look at the mess they have caused in nuclear field.

On examination, the coal slurry pipeline proposal is indeed a monster.* Neither is it a fable of Greek mythology. It is a consideration that poses frightening consequences for every Virginia community, every Virginia basic industry, every aspect of our environment,

and insidously weaves itself in the basic constitutional guarantee afforded the private citizen. We must slash at the head of the problem; bring it, and all its tentacles, to its death and bury it once and for all; for all our lives and those who will follow us.

Appendix "A" attached.

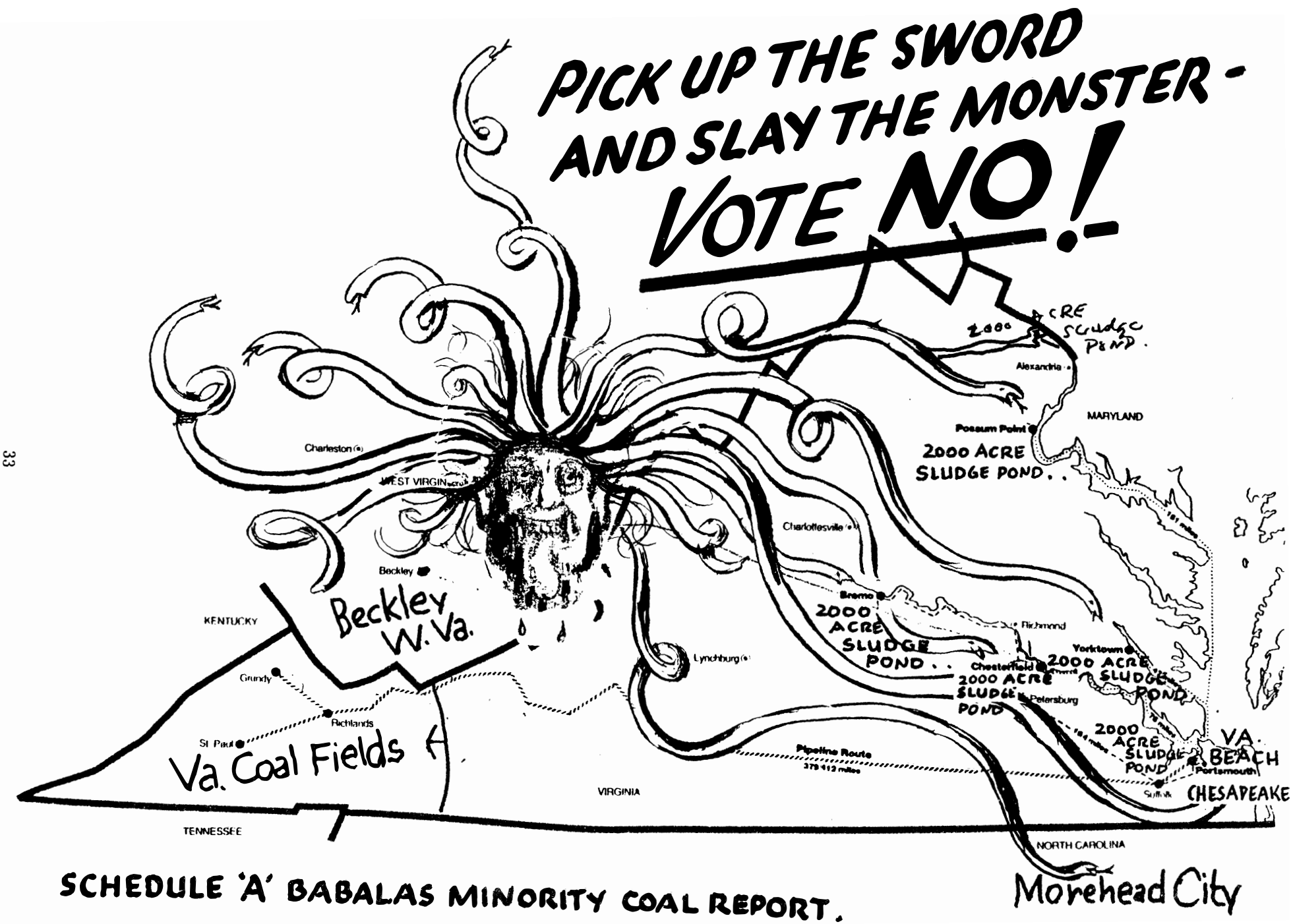
I have this date, January 24, 1984, read the Final Report to the State Water Control Board by the Department of Virginia Institute of Marine Science and consider it a hoax.

In the first place, when did the State Water Control Board ask for this study? In my report above I stated one of my prime reasons in opposing coal slurry pipelines is I cannot trust the regulators - in this case, the Water Control Board. This is a limited analysis of coal. The report fails to show that each mine has different organic compounds. On page 2 of their report it is stated: "The present study was done because no prior information exists...." On page 3, "Some approximations were required because the operation and construction engineering details of the proposed Virginia pipeline were not specified .....Analyses of organic compounds in aqueous leachates of Appalachian coals have not previously been done .... there has been no prior study of a United States coal slurry transport system in which effluent water was analyzed...."

The coal used is not identified as to its being metallurgical or steam coal. On page 9, "Slurry dewatering was simulated by simple gravitational settling in the storage cylinder at the end of each experiment .....Chemical treatment, filtration and centrifugation were

not investigated, as dewatering methods .....were not available."

In conclusion, this report only strengthens my minority opinion.


PICK UP THE SWORD
AND SLAY THE MONSTER -
VOTE NO!
2000 ACRE SLUDGE POND
Alexandria
MARYLAND
Possum Point
2000 ACRE SLUDGE POND..
Charleston
WEST VIRGIN
Charlottesville
Beckley
Beckley W. Va.
KENTUCKY
Bremo
2000 ACRE SLUDGE POND..
Richmond
Yorktown
2000 ACRE SLUDGE POND
Chesterfield
2000 ACRE SLUDGE POND
Petersburg
Lynchburg
Grundy
Richlands
St Paul
Va. Coal Fields
2000 ACRE SLUDGE POND
VA. BEACH
Portsmouth
Pipeline Route
379 412 miles
VIRGINIA
CHESAPEAKE
TENNESSEE
NORTH CAROLINA
SCHEDULE 'A' BABALAS MINORITY COAL REPORT.
Morehead City

THE DISSENTING STATEMENT OF THE HONORABLE CLINTON MILLER

I was designated to serve on this Committee regarding House Joint Resolution 117 at a time in which I had formulated no opinion regarding the merits of the issues addressed by the Resolution. I did not attend all the public hearings, but I had and have all the material disseminated as a result of those hearings, much of which information is purely repetitious. I do want to commend all of those, both pro and con, who appeared before the committee and who presented evidence and material which has proven so useful to the committee.

We have heard "experts" on both sides, and the consultant's reports and some conclusions are difficult to refute at times, and at the same time, difficult to accept.

In reaching my conclusions as to what my personal position would be on this matter, I looked at several broad, philosophical issues which have bothered me from the inception of the study. I feel these issues are of overriding import in comparison to other points raised in the study and emphasized by the final report. I trust those who read this report will reflect on these broader issues and take the time to further reflect on them prior to the finality of any decision on the proposed legislation. I set forth my particular concerns in a general nature, as follows:

I. PROBLEMS CONCERNING COMMERCE CLAUSE OF THE UNITED STATES CONSTITUTION

The majority report encourages the development of a coal slurry pipeline process under conditions which are clearly not going to withstand a "commerce clause" attack in the future; thus, the

resultant interstate commerce usage of such a pipeline process across the Commonwealth will create additional pressures of competition for the Virginia coal industry from West Virginia and Kentucky. It is my feeling that much too much has been made of the assertion that this pipeline process will be for and on behalf of Virginia coal, unintended to operate as an interstate conduit for other states' products, when the legal reality is otherwise. Let us be honest with the public and advise "up front" that the proposed pipeline which might be built as a result of the proposed legislation will have to be an interstate carrier if a challenge is made to access for interstate commerce.

II. ENVIRONMENTAL CONCERNS

The majority report, and the proposed legislation, seems to disregard rather than technically answer the criticisms of environmental disturbance and damage, especially to the Chesapeake Basin. There definitely has been no showing of any positive impact such a proposed slurry pipeline might have, and there has been definite unrebutted evidence of the possible negative impact in this area. It's ironic that we in the Commonwealth are, at this particular time, advocating the urgency of such a proposed coal slurry pipeline, with many environmental questions unanswered, and at the same time the Commonwealth is embarking on a joint and costly effort with the District of Columbia, Maryland, and Pennsylvania to "clean up the Bay." I would urge further investigation into the total environmental impact of this proposal before voting to change Virginia's present policy toward the establishment of such a transporting device. (The policy

of Virginia, as now stated by its prohibition of the use of the power of eminent domain to establish such a pipeline) Also, as I read the proposed legislation, it provides no protection from ground water contamination as a result of toxic residue at the pipeline's terminal. Have we paused long enough in our rush to conclusion to seriously consider this aspect of the proposal?

III. INTER-BASIN TRANSFER OF WATER

As the proposal presently stands, it would place the General Assembly in the posture of going on record as endorsing the principle of the inter-basin transfer of water. I have recognized that, due to the coming crisis in fresh water supply which will undoubtedly be an issue of major import not only in Virginia but throughout the world in the coming decades, we will have to someday face the fact that our huge concentrations of population will have to be served by water transfers from one area of the country to another in major proportions. But I do not think that we should be asked to vote on this principle, at this time, for a use of fresh water in inter-basin transfer in a wasteful and unwise form. What we are being asked to recommend to our citizens is the taking of needed fresh water in tremendous volume from one part of Virginia to another, contaminating the water, then dumping this water where it cannot be used for human consumption, agriculture, or general industrial use. And dumping the water into water of different character and upsetting the ecology in the process. In essence, the proposed legislation violates every principle of sound water resource management. What answers will

those who support this process give to our successors and citizens in the future when this most vital of natural resources is dangerously scarce, as it is sure to be?

IV. THE POWER OF EMINENT DOMAIN

Recently, the United States Congress refused to enact legislation granting coal slurry pipelines the right of eminent domain. What message do we now send Congress? Under the circumstances now existent, I do not want to see another extension of the right of the power of eminent domain in Virginia. The term eminent domain means just that - the power of the King (the State) to take whatever in his domain he deems necessary for what he (the King - the State) perceives to be in the best interest of the whole (or the best interests of the King - the State). To hell with individual rights, freedoms, and interests when it flies in the face of the concept of eminent domain! My point being - unless it is of absolute necessity for the unrefuted and unquestioned common good and health, safety, and welfare of the citizenry, the power of eminent domain should be withheld from government, and surely from quasi-public bodies, and questionable "public uses," and left unexercised unless truly of great necessity. That great necessity has not been shown in the study resulting from the enactment of House Joint Resolution 117. Proposed excessive governmental authority should always be viewed with jaundiced eyes.

CONCLUSION

It may well be that the proposed coal slurry pipeline would result in all the benefits its proponents aver. But the evidence

presented over the past months of this study does not clearly show that to be the case. The evidence shows that perhaps such might be the case. There is enough evidence to the contrary by opponents to question emphatically the assertions of the proponents. At the risk of being accused of an overly "judicial" approach to this situation, I take the position that the proponents, in light of the major impact (whether good or bad) such a proposed pipeline would have on our Commonwealth, must bear the "burden of proof" as to the wisdom of a change of State policy at this time. For the reasons stated above, that is: the constitutional problem in relation to the use by other states of this proposed pipeline or pipeline route; the uncertainty of the environmental impact such a project would entail; the apparent lack of complete analysis of the resultant effect of the heavy water use and inter-basin transfer of water; and the imposition of rights of eminent domain under these particular circumstances and upon the basis of the evidence presented for the proposed removal of the restriction upon such right; I must conclude that the existing law should remain as is and that no overriding public interest of our citizens as a whole mandates any change in the law (and thus State policy) at this time.

Respectfully submitted,

Clinton Miller

HOUSE JOINT RESOLUTION NO. 117

Establishing a joint study committee to study the desirability of allowing the development of coal slurry pipelines and utilization of Virginia coal in Virginia.

Agreed to by the House of Delegates, February 14, 1983
Agreed to by the Senate, February 23, 1983

WHEREAS, coal is of utmost importance to and has a profound impact on all facets of Virginia; and

WHEREAS, it is necessary that the Commonwealth do everything feasible to promote the development and sale of this tremendous resource; and

WHEREAS, the coal industry has suffered severe economic trauma in recent months with the layoff of miners and shutdown of mines; and

WHEREAS, Virginia ports have suffered as the result of a lessening of demands for coal exports; and

WHEREAS, this decrease in exports is due in part to the cost of Virginia coal relative to coal produced elsewhere; and

WHEREAS, some feel an alternative transportation means for coal could lead to increased export capabilities as well as increased domestic markets in the Northeast; and

WHEREAS, it is of vital concern to the Commonwealth that the domestic and export use of Virginia coal be facilitated and be made as competitive as possible, and that all power generating public utilities operating in this Commonwealth be urged to use Virginia coal when feasible; and

WHEREAS, some feel that transportation of coal by slurry pipeline would result in substantial unemployment and other adverse effects; and

WHEREAS, Virginia's railroads and their continued health are of vital importance to the Commonwealth; and

WHEREAS, it is in the interest of all shippers, big and small, coal and non-coal, to maintain a common carrier system; and

WHEREAS, independent studies have indicated both the possibility of substantial cost savings from the development and use of pipelines as well as possible negative environmental and economic impacts through the use of pipelines for coal transportation; and

WHEREAS, current state law restricts the use of eminent domain authority to construct such a pipeline and Federal legislation is contemplated that could result in a substantial market decline for Virginia coal by providing for interstate pipelines through the Commonwealth with no access to Virginia coal; and

WHEREAS, it is in the interest of the Commonwealth to evaluate the feasibility of and determine the desirability of the development of coal slurry pipelines in the Commonwealth; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That a joint study committee is established to study the feasibility of establishing a coal slurry pipeline in the Commonwealth and the utilization of Virginia coal and determine whether such pipeline should be allowed the use of the power of eminent domain, and, if so, (i) what limitations, if any, should be imposed upon the use of the power of eminent domain, (ii) what standards or restrictions should be applied to such pipelines, (iii) whether there is a public need for additional coal transportation facilities, (iv) the potential impact on the environment, (v) the impact on the financial health of railroads, on rail and other employment and the impact on rail rates for nonpipeline shippers of coal and other commodities and (vi) such other matters as the joint study committee may deem appropriate. The joint study committee shall consist of five members of the House of Delegates appointed by the Speaker and three members from the Senate of Virginia appointed by the Senate Committee on Privileges and Elections and three members shall be appointed by the Governor from the State at large. The office of the Attorney General shall assist the joint study committee on conflicting legal issues and all agencies of the Commonwealth shall assist the study committee in its deliberations as called upon. The study committee may utilize independent consulting services as needed during the course of its study.

The study committee shall, during the course of its deliberations, hold four public hearings, two of which shall be held in Southwest Virginia, one of which shall be held in Hampton Roads and one of which shall be held in Richmond.

The study committee shall complete its work in time to make recommendations to the 1984 Session of the General Assembly.

The cost of this study shall not exceed $200,000.

THE BDM CORPORATION

Dewberry & Davis

7915 JONES BRANCH DRIVE · McLEAN, VIRGINIA 22102-3396 · (703) 821-5000 · TELEX: 901103 BDM MCLN

Virginia Coal Slurry Pipeline Study

Final Report

PREPARED FOR THE VIRGINIA JOINT STUDY COMMITTEE

NOVEMBER 10, 1983 **BDM/W-83-594-TR**

CHAPTER I
EXECUTIVE SUMMARY

A. PURPOSE

The purpose of this study is to research and provide information to the Joint Legislative Study Committee concerning the issues associated with (1) the feasibility of implementing a coal slurry pipeline in Virginia, and (2) the use of Virginia coal. The major issues include the long-term supply of and demand for Virginia coal; the factors influencing demand for Virginia coal; the comparative economics of rail and pipeline transportation of Virginia coal; the availability of water to support a coal slurry pipeline; the disposal of water from a coal slurry pipeline; the environmental impacts of a Virginia coal slurry pipeline and the rail transport of Virginia coal; the economic impacts of a Virginia coal slurry pipeline on the affected railroads and on the Virginia economy; and the legal issue of interbasin water transfer in Virginia.

B. SCOPE

This study is a three-month intensive analysis of the issues associated with a coal slurry pipeline in Virginia. This report is not intended to be a detailed engineering analysis of all technical factors associated with each issue. A major scope-limiting assumption in the study is the fact that metallurgical coal cannot be transported in a slurry pipeline because of its particle size. Therefore, the issues associated with Virginia coal are focused on the transportation of Virginia coal for steam-related consumption.

C. METHODOLOGY

In the conduct of the supply and demand analysis of Virginia coal, considerable reliance was placed on data from the US Department of Energy

and Virginia's Center for Coal and Energy Research. In conducting the examination of the relative economics of rail and pipeline movement of Virginia coal, the study team relied heavily on the methodology previously used for the Federal study of coal slurry pipelines in 1978. The analysis of water availability in southwest Virginia primarily represented new work, and the analysis of slurry effluent discharge was based upon a full examination of prior studies and discussions with the State Water Control Board representatives. The derivation of economic impact data represented new work. Finally, the analysis of railroad environmental impacts was based on several types of modeling and new work, as well as some findings of recent studies.

Overall, the subject of coal slurry pipelines is not new and it has been studied many times by many groups. However, the unique aspect of this study is the potential use of coal slurry pipelines in Virginia. This makes the study analysis specific to Virginia-unique considerations and issues.

D. MAJOR ISSUES SUMMARY

1. Virginia Coal Supply

The identified coal reserve base (as of 1975) in Virginia is 3,512 million tons.[1] Of this, 2,568 million tons, or 73 percent, are in Buchanan, Dickenson, and Wise Counties. Table I-1 presents a summary projection of coal production potential through 2020 for Virginia as a whole, and its leading coal reserve counties: Buchanan, Wise, and Dickenson. The table shows the 1981 production, the estimated reserve base in 1990, and the potential annual production that could be sustained over a thirty year period, 1990 through 2020. The resulting potential annual production data, which must be considered a conservative estimate, reflect the amount of coal that would be available to support a slurry pipeline from 1990 through 2020. These coal reserve data indicate that Virginia's highest coal producing counties have enough coal reserves to support a substantial increase in production through the year 2020. Currently, the

1. All coal tonnages represent short tons unless otherwise noted.

TABLE I-1. COAL PRODUCTION PROJECTIONS[1]
(MILLION TONS)

	1981 COAL PRODUCTION	ESTIMATED 1990 RESERVES	POTENTIAL ANNUAL PRODUCTION 1990-2020
TOTAL VIRGINIA	40.6	2,903.0	96.8
COUNTY:			
BUCHANAN	18.4	803.0	26.8
WISE	11.9	731.0	24.4
DICKENSON	5.6	495.0	16.5
OTHERS	4.7	874.0	29.1

1. USGS & DIV. MIN. RESOURCES CURRENTLY RE-ESTIMATING VIRGINIA COAL RESOURCES BASE.

SOURCES: US BUREAU OF MINES AND DEPARTMENT OF ENERGY

Virginia Division of Mineral Resources and the US Geological Survey (USGS) are in the process of re-estimating coal resources in Virginia. Preliminary results for selected coal beds are showing that, in some cases, the resource base is up to four times larger than previously estimated.

2. Demand for Virginia Coal

For the next two or three decades (or possibly longer) residential and commercial consumption of coal will not represent a significant coal market nationwide or in Virginia. During this period, synthetic fuel production from coal may become a commercial energy source but most of the initial synfuel productive capacity is expected to be installed in the western US. Industrial use of coal nationwide and in Virginia declined slowly from the 1950's, leveling off during the latter half of the 1970's. Since then, industrial consumption has increased slowly and is expected to continue this trend for the next several decades. Compared to the utility sector, this market is relatively small.

Most of the coal produced in Virginia has been used for electric power generation, export (both steam and metallurgical coal), and, to a lesser extent, domestic coke production. Domestic production of coke declined nearly 40 percent in the 10 year period between 1973 and 1982 and the domestic metallurgical coal market is not expected to regain its past position. There appears to be general agreement that the metallurgical coal market will probably remain relatively flat. Worldwide coke production has experienced this same trend so that international demand for metallurgical coal for producing coke will not grow rapidly, if at all. Thus, if Virginia is to maintain its 5 percent share of increased US coal production, its demand base will come from the steam coal export and in the domestic electric utility markets. Since Virginia's electric utility market is somewhat limited, demand in this sector will come from coastwise shipments of coal to electric utility companies along the east coast.

Table I-2 provides a summary estimate of the prospective market for central Appalachia/Virginia steam coal. The two sectors that will drive the demand for central Appalachia/Virginia steam coal are the export market and the eastern seaboard coastwise utility market. Based upon

TABLE I-2. US STEAM COAL DEMAND ESTIMATES
(MILLION TONS)

	1982	1990			2000		
	ACTUAL	LOW	PROBABLE	HIGH	LOW	PROBABLE	HIGH
TOTAL US EXPORT	27	69	70	79	150	155	175
EASTERN SEABOARD COASTWISE UTILITY	13	17	25	35	23	35	50
TOTALS	40	86	95	114	173	190	225
ESTIMATED HAMPTON ROADS SHARE	20	-	50	-	-	100	-

SOURCE: BDM ESTIMATE

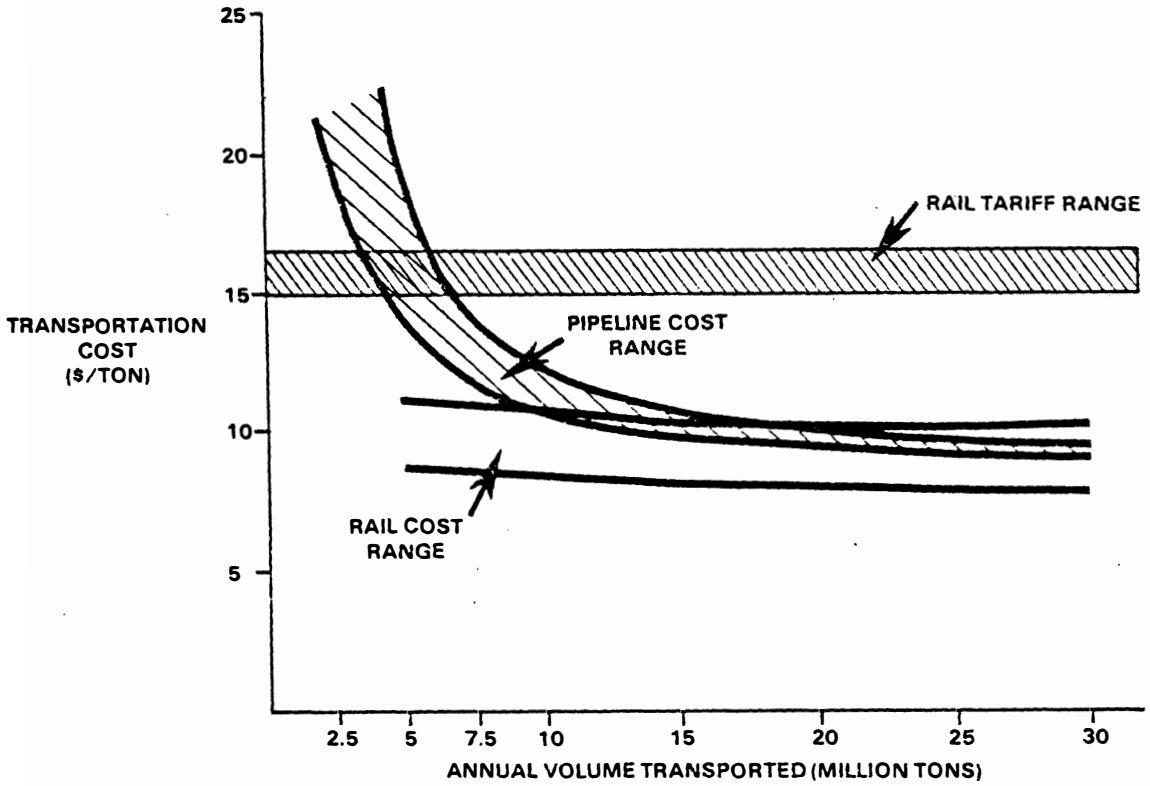
current percentages, the Hampton Roads market for steam coal was about 20 million tons per year in 1981. Extrapolating these percentages to the 1990 probable case results, the demand for steam coal at Hampton Roads will climb to the 50 million ton per year level, and in 2000 to the 100 million ton per year level. Therefore, there should be sufficient demand for steam coal at Hampton Roads to support at least one 25 million ton per year (MT/YR) level slurry pipeline in the 1990 through 2020 time period.

3. Prospective Pipeline Market Share

a. Pipeline and Rail Cost Comparison

Figure I-1 presents a graph of the pipeline and rail costs in mid-1983 dollars for transporting southwest Virginia's coal to Hampton Roads at varying annual throughput volumes. Both rail and pipeline costs are represented by a range within which actual costs are expected to occur. It can be seen from this graph that, on a cost basis, pipelines do not become competitive with rail until an annual throughput volume reaches 15 MT/YR or greater. It is also seen that in Virginia, in many cases, railroads can slightly underprice pipelines on a cost basis, even at the very high volume levels. However, if current rail tariffs, which fall in the $15 and $16 range, are considered, pipeline transportation of coal becomes very attractive from an economic perspective. At current tariffs, pipeline transportation of coal could save as much as $4 to $5 per ton of delivered coal at Hampton Roads.

A logical question is why are rail coal tariffs so much higher than the railroads' full costs. The primary reason is that in a relatively captive market, there is no strong incentive to lower tariffs. Previous studies have shown that (1) the cost of US export coal is high relative to other suppliers, (2) the other suppliers set their prices based upon US prices, and (3) price is not the sole determining factor used by importers in purchasing coal. Given these factors, a slight decrease in the delivered price of US export coal will not be reflected by a substantial change in demand. Additionally, under recent congressional and ICC initiatives, the railroad companies have been encouraged to use this relatively captive traffic to improve their "revenue adequacy" positions.



SOURCE: BDM ESTIMATE

Figure I-1. Pipeline and Rail Cost Comparison

b. Pipeline Market Share Analysis

Given the prospective 1990 and 2000 market demand for steam coal and current rail tariffs, it is likely that a coal slurry pipeline from southwest Virginia to Hampton Roads would be an attractive alternative to rail haul. However, if the railroads felt a direct threat of competition for a particular shippers' traffic, it is also likely that they would reduce their tariffs substantially to underprice the pipeline. Therefore, if a coal slurry pipeline is actually to be built, it is likely that a consortium would have to be formed which ties shippers and consumers together prior to implementation of the project so that an assured long-term coal supply and demand could not be undercut by reduced rail tariffs. If competitive bids for transportation rates are the rule, it is likely, as in the case of the recent Arkansas Power and Light decision, that in each instance the railroad companies would move to underprice the pipeline bids.

c. Competition from West Virginia Coal

Southern West Virginia has a considerably larger coal production capacity and reserve base than southwest Virginia, and the distance from the Beckley area is slightly shorter to Hampton Roads than from southwest Virginia. BDM's pipeline cost analysis has shown that a 15 MT/YR Beckley to Hampton Roads pipeline would be about $.20 per ton cheaper than its southwest Virginia counterpart. Therefore, it is more probable that a West Virginia pipeline would be built if Federal eminent domain were granted for interstate coal slurry pipelines. While the Federal Eminent Domain Bill was defeated on the House floor on September 27, 1983, there is no reason to believe that a new bill will not reappear in future sessions of Congress. Further, even if a Federal bill is not enacted, if both Virginia and West Virginia enact eminent domain legislation for an intra-state pipeline, a means would then exist for a West Virginia pipeline to Hampton Roads. If a West Virginia coal slurry pipeline were implemented, there is little doubt that the market for southwest Virginia steam coal would suffer, unless the State of Virginia imposed, by legislation, requirements for the use of Virginia coal in an intra-state pipeline.

4. Economic Impacts

a. Increased Coal Transport Scenarios

Economic impacts are derived and examined for four coal movement scenarios. Each scenario involves the transport of additional incremental coal tonnages from southwest Virginia to the Hampton Roads area. For each scenario, the following four data sets are displayed:

(1) Pipeline construction employment and income,

(2) Pipeline operations employment and income,

(3) Railroad operations employment and income, and

(4) Additional employment and income resulting from increased coal production.

Each of the above data sets are further divided by subcategory as shown in Table I-3. The data in this table include the impact of secondary employment multiplier effects. It should be noted that increased coal tonnages could be transported by either pipeline or rail; therefore, both pipeline and rail data are shown. Also, the economic impact of increased coal production could result from either an all-rail or all-pipeline movement. It is impossible to know ahead of time what the actual scenario will be; however, the specifics of a given scenario are not as important as the relative range of the economic impacts that could be expected to occur.

Table I-3 shows a $66 million per year impact for three years resulting from the construction of 15 MT/YR pipeline. Subsequently, a $19 million a year increase in income would result from annual pipeline operations. Correspondingly, a 15 MT/YR rail haul will result in an annual operating income to the State of nearly $25 million (i.e., higher than found for the pipeline case). In either a rail or pipeline case, a 15 MT/YR increase in coal production in the Buchanan County area will result in an employment increase of about 10,000 workers and an income received within the State of about $260 million. The most significant economic impact to Virginia, by a wide margin, will result from increased coal production.

TABLE I-3. EMPLOYMENT AND COMPENSATION IMPACT OF 15 MT/YR SCENARIO (SINGLE-ORIGIN PIPELINE)

SCENARIO C. 15 MT/YR GRUNDY-HAMPTON ROADS

ACTIVITY	TASK	PRIMARY EMPLOYMENT		SECONDARY EMPLOYMENT		TOTAL EMPLOYMENT	
		YEARLY EMPLOYEES	TOTAL YEARLY COMPENSATION ($000)	YEARLY EMPLOYEES	TOTAL YEARLY COMPENSATION ($000)	YEARLY EMPLOYEES	TOTAL YEARLY COMPENSATION ($000)
PIPELINE-CONSTRUCTION (3-YR DURATION)	PREPARATION	237	$ 6,102	55	$ 963	292	$ 7,065
	DEWATERING	396	11,158	289	4,682	685	15,840
	OTHER	1,330	39,481	266	3,990	1,596	43,471
	TOTAL	1,963	$ 56,741	610	$ 9,635	2,573	$ 66,376
PIPELINE-OPERATIONS	INGATHERING	301	$ 5,607	211	$ 3,693	512	$ 9,300
	PREPARATION	72	2,416	50	875	122	3,291
	DEWATERING	80	2,667	176	2,851	256	5,518
	OTHER	28	840	17	255	45	1,095
	TOTAL	481	$ 11,530	454	$ 7,674	935	$ 19,204
ALTERNATE RAILROAD-OPERATIONS	INGATHERING	121	$ 2,254	85	$ 1,488	206	$ 3,742
	RAIL TRANSPORT	408	10,296	612	10,588	1,020	20,884
	TOTAL	529	$ 12,550	697	$ 12,076	1,226	$ 24,626
COAL-PRODUCTION (INCREMENTAL)	BUCHANAN	5,962	$186,362	4,173	$ 73,111	10,135	$259,473

b. Impact on the Norfolk Southern Corporation

In 1982, the Norfolk Southern (NS) Railway System originated 83 percent of coal transported from Virginia mines. The economic impact of the loss of a 5 MT/YR level of coal traffic on the Norfolk Southern is shown in Table I-4. In terms of the Norfolk Southern overall revenues and income, a loss of 5 MT/YR coal revenues will result in a 2.31 percent change in revenues (i.e., $77 million) and income (i.e., $9.5 million). Given that the Norfolk Southern could reduce their variable costs accordingly, the impact of lost tonnage could result in a $13.6 million loss from fixed operating expenses. Should this amount be spread over all other freight revenue, the impact would result in a .4 percent increase to other existing freight tariffs.

c. Potential Utility Cost Savings

The final economic impact area is the cost savings that could be passed on to consumers resulting from a prospective reduction in the transportation cost of coal to Vepco. A $4 per ton reduction in coal rates for Vepco at a consumption level of 5 MT/YR, if passed through to its customers, would result in a $20 million consumer saving. This results in a $6.35 per year saving for residential customers, a $41.19 per year saving for commercial customers, a $2969.25 per year saving for industrial customers, and a $216.77 per year saving for other customers.

5. Summary of the Environmental Impacts of Coal Slurry Pipelines and Unit Coal Trains

a. Introduction

The respective major environmental impacts of coal slurry pipelines and unit coal trains have been separately analyzed and documented in detail in the following chapters of this report:

Chapter IX - Analysis of Water Availability in Southwest Virginia

Chapter X - Evaluation of Pipeline Effluent Discharge

Chapter XI - Environmental Impacts of Slurry Pipeline Construction, Operation, and Maintenance

Chapter XII - Environmental Impacts of Unit Train Coal Movements

TABLE I-4. IMPACT OF 5 MT CHANGE IN COAL TONNAGE ON NORFOLK SOUTHERN CORPORATION

	1982 (THOUSANDS)	5 MT (THOUSANDS)	%
REVENUE (TOTAL)	$3,358,996	$77,500	2.31
NET INCOME	$ 411,368	$ 9,491	2.31
EMPLOYEES	41,260	136[1]	.33

1. REPRESENTS REDUCTION IN TRAIN CREW PERSONNEL ONLY

SOURCE: BDM ESTIMATE

b. Coal Slurry Pipeline Impacts

1) System Description

To identify and evaluate the environmental impacts of a coal slurry pipeline, one must understand the various stages of the system, which are preparation, pumping, and dewatering. In the preparation stage, the coal is pulverized at the preparation plant, mixed with the proper amount of water, and transferred to slurry tanks. Long distance flows require intermediate booster pump stations to maintain pipeline flow and pressure. Usually, these booster pump stations have a supplementary water supply to flush out pipeline sections and a dump pond to accommodate slurry from the up-stream section in case of an emergency. At the terminus or destination point, coal is removed from the water by centrifuges and thermal drying. This step is known as dewatering; which prepares the coal for use at the terminus. The carrier water is then disposed of or recycled. Coal storage and handling requirements at the pipeline terminus will vary according to the intended use of the coal. Assuming that the terminus is an export coal pier in Hampton Roads, short-term storage in coal piles and coal loading facilities similar to those at other Hampton Roads coal terminals will be required.

2) Water Availability

On the assumption that a coal slurry pipeline should not consume more than 50 percent of a waterbody's "safe yield" (30-year low flow, as defined by the Virginia Department of Health), potential sources of slurry water were identified in each of southwestern Virginia's two major drainage basins. In the Tennessee River Basin, the Clinch River below Cleveland appears capable of sustaining a pipeline that has an annual throughput capacity of 15 million tons of coal. Prospects appear somewhat uncertain, however, for supplemental water supplies from other sources in this basin to support a larger capacity pipeline. In the Big Sandy River Basin, the John Flannagan Reservoir appears to have sufficient capacity to supply a 25 MT/YR coal slurry pipeline, although the maximum sustainable pipeline capacity could not be determined without a detailed analysis of competing flood-control, low flow augmentation, and recreational uses.

Again, prospects were found to be uncertain for other reliable and sufficient supplemental water sources.

The analysis of water availability included detailed examinations of streamflows, existing on- and off-stream reservoirs and impoundments, potential sites for new reservoirs and impoundments, groundwater supplies, and other sources such as minewater and sewage water. A "closed-loop" system to reuse slurry water by returning it from the pipeline terminus to the pipeline origin was also considered.

3) Wastewater Treatment and Disposal

It is not possible to anticipate the precise pollutant loadings of untreated slurry water for the proposed pipeline because the wastewater quality will depend greatly on the characteristics of the coal and source water transported through the pipeline. It is possible, however, to project the types of pollutants and general concentration levels that are likely to be in the slurry water, and the associated implications for wastewater treatment and reuse or disposal.

Various laboratory studies and the historical experience of the Black Mesa coal slurry pipeline indicate that slurry water will contain the following constituents:

- Total Dissolved Solids
- Hardness
- Sulfates
- Calcium
- Chromium
- Cadmium
- Iron
- Manganese
- Lead
- Magnesium
- Mercury
- Nickel
- Selenium
- Sodium
- Arsenic

In general, these pollutants are treatable with current technology, and heavy metals are expected to occur in very low concentrations, although toxics in the pipeline effluent would be closely scrutinized in the permit application process and would have to meet very strict discharge standards. The major variables that will determine actual

treatment requirements will be the quality of source water and the intended wastewater use or disposal method.

Bacteriological contamination and low dissolved oxygen are common surfacewater problems in southwestern Virginia. High suspended solids, iron, manganese, and low pH are also problems. Site specific evaluation of source water quality will be required if a coal slurry system is developed in Virginia. Surface water will occasionally experience high turbidity and the sediments could adversely effect the final coal quality as well as the wastewater quality. To minimize problems with coal slurry wastewater quality and final coal quality, a high quality slurry water should be used. For this reason, source water treatment must be considered. Coagulation and clarification should be provided so that a clean slurry water is used. The alkalinity should be adjusted to ensure an adequate buffering capacity since leaching of potential contaminants is enhanced at low pH values. Higher alkalinity will also reduce the corrosion potential of the slurry water.

Four reuse options were considered for pipeline effluents: industrial, agricultural, municipal, and "closed loop" reuse as slurry water. Each reuse option would require a differing degree of treatment. A survey of potential industrial users concluded that, at the present time, none have sufficiently large or consistent water requirements to be very likely users. Agricultural water requirements appear too variable to be relied on entirely as a reuse option. Public health officials expressed concern that pipeline effluents might be too inconsistent in volume and quality to be treated for use as a municipal water supply. Reuse of pipeline effluents as slurry water is feasible technically, and would avoid wastewater treatment costs, but might pose excessive pipeline construction and operating costs. Treatment of slurry wastewater for direct discharge would require application for a permit imposing strict standards on pollutant concentrations, although it does appear that pipeline effluents could be treated sufficiently to meet the discharge standards.

4) Pipeline Construction, Operation, and Maintenance

(a) Construction

The major pipeline construction impacts will be clear-cutting of forested areas and land disturbance on steep grades in southwestern Virginia. In some cases, runoff and erosion from construction areas may pose short-term risks of surface and groundwater contamination. Small streams and wetlands affected by construction would also suffer short-term disruption. Both pipeline installation and site restoration will be difficult and disruptive in affected wetlands. Mitigation of these impacts during construction, and careful restoration of disturbed areas, will be required.

(b) Operation and Maintenance

The major concern regarding pipeline operation appears to be the potential for pipeline ruptures and coal slurry spills. Such incidents are not considered likely to occur with any frequency, although the possibility of a spill does exist. In general, the consequences of a spill would be insignificant. However, a spill affecting small streams or wetlands areas would have short term impacts with respect to water turbidity and settling of coal fines which could suppress productivity. Clean up of spills in such instances would prove disruptive. These impacts are expected to be short-term unless extremely sensitive or critical habitats are affected.

Operation of a coal terminal will also result in some environmental impacts that will vary according to facility design. For instance, if chemical precipitation is needed in wastewater treatment, sludge management will be required. Handling and storage of coal will result in fugitive dust emissions. In general, terminal operation impacts will be similar to those of other Hampton Roads coal terminals.

Maintenance-related requirements for access, surveillance and monitoring of the pipeline and right-of-way may pose some long-term impacts. For instance, special access roads may be required in remote areas, and some clear-cut areas may not be reforested immediately.

Areas of principal concern with respect to these impacts would be forest and agricultural lands. In general, proper construction methods can reduce the significance of these impacts.

c. Unit Train Impacts

1) Introduction

The analysis of unit coal trains focused on the environmental impacts of a potential future increase in unit coal train operations between southwestern Virginia and Hampton Roads (a maximum increase of 25 million tons per year). The analysis also focused on the economically optimum rail movement (from Grundy to Lambert's Point in Norfolk using N&W track) as a case study. In the base case, we assume a two-way total of 20 train operations per day between Abilene and Norfolk on the optimum rail route. An additional 25 million tons of coal annually will require approximately seven additional trains per day in two-way traffic.

2) Train Noise

The noise analysis describes the three major train noise impacts in Virginia: single-train passby noise events; the ambient noise environment of Virginians exposed to train noise; and, the estimated number of Virginians exposed to train noise exceeding EPA's guideline of Ldn 55 dBA, the maximum noise level that provides a healthy residential environment with an adequate margin of safety.

Using the assumption that train operations are evenly distributed throughout the 24-hour day, the minimum number of daily train noise events was estimated for the optimum rail route between Abilene and Norfolk during three time periods: daytime (8:00 am - 5:00 pm); evening (6:00 pm - 10:00 pm); and, nighttime (10:00 pm - 7:00 am). In a public school classroom, such noise intrusions would likely increase from 5 a day (base case) to 7 a day with increased rail coal traffic and, at a location 100 ft. from the tracks, would force the classroom teacher to shout or even interrupt a lecture during each 5-minute train passby. With increased rail traffic, normal evening activities in a residence could be interrupted entirely four times an evening for up to 20 minutes total at a distance of

100 ft. from the tracks, while conversation in a "Raised" or "Very Loud" voice could be possible in a residence located 200 ft. from the tracks. The number and significance of nighttime sleep disturbances would vary according to individual noise tolerance and sleep habits such as the number of hours that an individual sleeps each night. The number of train noise events would increase from seven each night to 10 each night with increased rail coal movements.

In order to gauge the ambient noise impact of increased rail traffic, the estimated base case noise environment at 100 ft. from the tracks was compared to the estimated ambient noise environment with an additional annual rail movement of 25 million tons of coal. The results of the analysis indicate an excessive amount of noise even with the 20 daily trains in the base case (Ldn 84.6 dBA). This is in the range defined by HUD as "severe exposure/clearly unacceptable." With an increase to 27 daily trains, noise levels would increase to Ldn 86.1 dBA. The increase of 1.5 dBA would normally be considered insignificant.

An estimate was also made of the general population exposure to rail-related noise exceeding EPA's guideline of Ldn 55 dBA in residential areas. The projected increase of seven daily train operations on the optimum route is estimated to result in an additional 14,656 people being exposed to noise exceeding Ldn 55 dBA, an increase of 21.2 percent. The actual noise exposure of individuals residing within this Ldn 55 "noise zone" would vary widely. According to the HUD standards, 55-65 dBA is normally acceptable, and 65-75 dBA is normally unacceptable. The population newly exposed to train-related noise exceeding Ldn 55 dBA would largely be impacted by noise levels in the 55-65 dBA range.

3) Rail-Highway Grade-Crossing Impacts

Grade-crossings have two major impacts: accidents and motorist delay costs. The annual number of accidents at grade-crossings has been decreasing significantly, both nationally and in Virginia. The decrease in accidents appears to be closely related to improvements in grade-crossing warning devices. The trend toward improved grade-crossing safety is expected to continue in the future. Increases in

daily through trains do appear to adversely impact accident rates at individual grade-crossings, but the number of accidents at Virginia grade-crossings is expected to decrease in the long-term even if rail traffic increases.

The grade-crossing motor vehicle delay cost methodology used in this study estimates that an annual increase of 25 million tons in coal movements on the optimum rail route would produce a composite increase in delay time of 37.5 percent and a net increase in delay costs of 22.3 percent. The net dollar increase in delay costs would be $3,484.58, and the increased delay time (i.e., vehicle idling time) would be 466 hours.

4) Air Quality Impacts

Transportation of coal by rail affects air quality in terms of diesel locomotive emissions and fugitive coal dust emissions. An increase in rail coal movements of 25 million tons per year would increase total diesel locomotive emissions in Virginia by approximately 25%. Despite this sizeable increase, railroads would remain a relatively minor emissions source. If the entire increase in rail coal movements occurred on the optimum rail route, the percentage increases in total emissions from all sources would be negligible in affected Hampton Roads cities (with the exception of Suffolk). Suffolk would incur both the largest percentage and volume increases in emissions. These two results stem from the combined effects of Suffolk's large land area, which causes the rail segment in Suffolk to be the longest of any in the four affected Hampton Roads cities, and the relatively low volume of current pollutant emissions in Suffolk. An analysis of current ambient air quality in these cities showed that all are in compliance with EPA health standards.

The analysis of line-haul coal dust emissions indicates that hopper car "blow off" in transit is not a significant problem. The storage and handling of 25 million tons of coal annually at a coal terminal can produce signficant increases in suspended particulates in the air. These elevated particulate concentrations do appear likely, however, to be confined to areas within the terminal site, should not cause violations of

EPA health standards, and are significant only with ground storage facilities.

d. Summary and Comparison of Impacts

The respective environmental impacts of coal slurry pipelines and unit coal trains are different and cannot be compared directly. If an adequate supply of source water and an acceptable wastewater reuse or disposal method can be identified, the principal impacts of a coal slurry piepline will be construction-related. The major unit train impacts are noise, grade-crossing accidents and delay costs, and diesel locomotive emissions. Construction and operation of a coal slurry pipeline would result in a more significant change to existing conditions because railroad impacts already exist and a very large increase in rail traffic is required to alter rail impacts significantly. It does appear feasible, however, to substantially mitigate the adverse impacts of either mode of transport.

6. Interbasin Water Transfer

Common law is the basis of riparian rights in Virginia. The riparian owner has a right to the beneficial use of water flowing through or by his land. These rights are vested property rights. There are several thousand instances in Virginia where water is withdrawn from surface streams for beneficial uses both within and outside the respective watershed. In the few instances where a withdrawal has damaged a downstream riparian owner, the courts have upheld the riparian doctrine. However, the courts have been explicit in saying that riparian rights can be acquired in a legal manner (by purchase or eminent domain).

If the General Assembly chooses to allow the right of eminent domain for coal slurry pipelines, legistation should also address riparian property rights.

APPENDIX C

Applied Marine Research Laboratory
Old Dominion University
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A SURVEY OF POSSIBLE USES OF COAL SLURRY WASTEWATER IN HAMPTON ROADS, VIRGINIA

By

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Prepared for the

Commonwealth of Virginia
Joint Subcommittee for the
Coal Slurry Pipeline Study

Submitted by the
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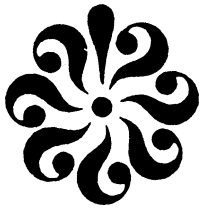
October 31, 1983



APPENDIX C

Executive Summary

Purpose

The purpose of this study was to determine the feasibility of reusing coal slurry wastewater. The scope of this research included information on alternative disposal methods, if reuse could not be adopted.

Methodology

The study was divided into two parts: reuse and disposal. First, reuse in industrial, potable and agricultural applications was examined. Then alternate methods of disposal were investigated. These include: treatment and stream discharge and discharge into existing sewerage treatment facilities. Information was gathered through extensive surveying of both large industrial water users and state and local agencies governing waste disposal in general.

Summary

There are various small industrial water users that could use and would be willing to reuse coal slurry wastewater to meet their water demands. However, these users are spread over a large geographic area necessitating the construction of an extensive pipeline system to supply the users thus making the plan economically infeasible. The Vepco Portsmouth power generating station, however, would be able to utilize the full amount of wastewater produced, is located in close proximity to the proposed wastewater source and would be willing to pay a "fair price" for the wastewater. Reuse of the coal slurry wastewater for potable uses will not be allowed by the State Health Department. Agricultural water use in this area is not large enough to facilitate reuse of coal slurry wastewater.

Direct stream discharge of the treated coal slurry wastewater could be allowed through issuance of a National Pollutant Discharge Elimination System permit. This permit is obtained through the State Water Control Board and would require extensive reporting of effluent characteristics. Discharge of the wastewater into existing industrial waste treatment facilities would also require extensive reporting of effluent characteristics but would probably not be approved due to incompatibility of the wastewater with treatment procedures.

Conclusions

The choice method of coal slurry wastewater disposal should be reuse of the wastewater by the Vepco Portsmouth power generating station. If this plan is determined unacceptable, treatment and stream discharge is considered the only means of disposal.

1984 SESSION

LD1212546

HOUSE BILL NO. 479

Offered January 23, 1984

A BILL to amend and reenact §§ 56-49 and 58-588 of the Code of Virginia, and to amend the Code of Virginia by adding in Title 56 a chapter numbered 19, consisting of sections numbered 56-531 through 56-538, and to amend the Code of Virginia by adding a section numbered 58-664.1, relating to coal pipeline public service companies.

Patrons—Pickett, Dickinson, Smith, Murphy, Lacy, Stambaugh, Green, Stafford, Quillen, Jennings, McGlothlin, and Robinson, J. W.; Senators: Anderson, Buchanan, Bird, and Jones

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Referred to the Committees for Courts of Justice

Be it enacted by the General Assembly of Virginia:

1. That §§ 56-49 and 58-588 of the Code of Virginia are amended and reenacted and that the Code of Virginia is amended by adding in Title 56 a chapter numbered 19, consisting of sections numbered 56-531 through 56-538, and that the Code of Virginia is amended by adding a section numbered 58-664.1 as follows:

§ 56-49. Powers. In addition to the powers conferred by Title 13.1, each public service corporation of this ~~State~~ *Commonwealth* organized to conduct a public service business other than a railroad shall have the power:

1. To cause to be made such examinations and surveys for its proposed line or location of its works as are necessary to the selection of the most advantageous location or route or for the improvement or straightening of its line or works, or changes of location or construction, or providing additional facilities, and for such purposes, by its officers and servants, to enter upon the lands or waters of any person but subject to responsibility for all damages that are done thereto, and subject to permission from, or notice to, the landowner as provided in § 25-232.1.

2. To acquire by the exercise of the right of eminent domain any lands or estates or interests therein, sand, earth, gravel, water or other material, structures, rights-of-way, easements or other interests in lands, including lands under water and riparian rights, of any person, which are deemed necessary for the purposes of construction, reconstruction, alteration, straightening, relocation, operation, maintenance, improvement or repair of its lines, facilities or works, and for all its necessary business purposes incidental thereto, for its use in serving the public, including permanent, temporary, continuous, periodical or future use, whenever the corporation cannot agree on the terms of purchase or settlement with any such person because of the incapacity of such person or because of the inability to agree on the compensation to be paid or other terms of settlement or purchase, or because any such person cannot with reasonable diligence be found or is unknown, or is a nonresident of the ~~State~~ *Commonwealth* , or is unable to convey valid title to such property. Such proceeding shall be conducted in the manner provided by ~~chapter~~ *Chapter* 1.1 (§ 25-46.1 et seq.) of Title 25 and shall be subject to the provisions of § 25-233. ~~Provided, however, the~~ *The* corporation shall not take by condemnation proceedings a strip of land for a right-of-way within sixty feet of the dwelling house of any person except (~~a~~ *i*

) when the court having jurisdiction of the condemnation proceeding finds, after notice of motion to be granted authority to do so to the owner of such dwelling house, given in the manner provided in §§ 25-46.9, 25-46.10 and 25-46.12, and a hearing thereon, that it would otherwise be impracticable, without unreasonable expense, to construct the proposed works of the corporation at another location; or (~~b~~ *ii*) in case of occupancy of the streets or alleys, public or private, of any county, city or town, in pursuance of permission obtained from the board of supervisors of such county or the corporate authorities of such city or town; or (~~c~~ *iii*) in case of occupancy of the highways of this ~~State~~ *Commonwealth* or of any county, in pursuance of permission from the authorities having jurisdiction over such highways.

~~And provided, further, that notwithstanding the foregoing nor any other provision of the law the right of eminent domain shall not be exercised for the purpose of acquiring any lands or estates or interests therein nor any other property for the construction, reconstruction, maintenance or operation of any pipeline for the transportation of coal.~~

~~But no~~ *No* corporation shall hereafter have any power to operate turnpikes or toll roads. That power is reserved to be granted from time to time to political subdivisions of the Commonwealth or otherwise as the General Assembly shall determine.

CHAPTER 19.

COAL PIPELINE PUBLIC SERVICE COMPANIES.

§ 56-531. *Definitions. — As used in this chapter:*

"Coal gathering district" means that portion of the Commonwealth designated as such by the Commission pursuant to § 56-533 in which there are located coal producing facilities .

"Coal pipeline" means a pipeline system more than five miles in length for the transportation of coal and includes a coal pipeline's gathering system, preparation plant, line pipes, pumping stations and, if applicable, facilities for removing the carrier medium.

§ 56-532. Requirements.—In order for any person to construct and operate a coal pipeline, the following requirements must be met:

1. Any coal pipeline must be owned by a public service corporation and operated as a common carrier. Public service corporations and affiliates thereof which are not engaged in the transportation of coal by pipeline may not hold an ownership interest in a coal pipeline corporation in an amount exceeding forty-nine percent of the voting stock thereof.

2. No coal pipeline public service company shall construct or operate a coal pipeline without first obtaining from the Commission a certificate of public convenience and necessity. In addition to setting forth any information which the Commission may reasonably require, the application for a certificate shall contain the following:

a. Maps which show in detail the proposed location of all facilities of the proposed coal pipeline; and

b. Maps showing the boundary of the proposed coal gathering district within the Commonwealth.

c. A detailed plan setting forth the manner in which the proposed coal pipeline will serve the transportation needs of the coal gathering district.

3. The preparation and input facilities shall be located in the Commonwealth and the pipeline itself shall be routed so as to serve existing Virginia coal production facilities.

§56-533. *Commission findings.—The Commission shall hold public hearings on any application for the certificate required under § 56-532. Application fees and costs arising from public hearings and certification procedures shall be borne by the pipeline public service company.*

Prior to the issuance of the certificate, the Commission shall make the following findings:

1. That the location and route of the pipeline facilities and the extent of the coal gathering district are reasonably calculated to promote the public interest by providing service to the Virginia coal industry and Virginia ports;

2. That the proposed coal pipeline shall not be located near existing coal pipeline facilities;

3. That the capacity of the pipeline is reasonably sufficient to serve the entire coal gathering district;

4. That the coal pipeline public service company shall comply with the following terms and conditions to avoid or mitigate the impact on the environment:

a. The Commission, in cooperation with the Council on the Environment, shall require the applicant to prepare an environmental impact statement in conjunction with its proceedings regarding the application for a certificate. The statement shall identify and discuss in reasonable detail all significant environmental impacts, alternatives and mitigating measures regarding the proposed pipeline, including alternatives to the discharge of effluent into the waters of the Commonwealth by a coal pipeline. The statement shall satisfy substantive requirements of both state and federal environmental impact reporting laws as specified in § 10-17.108 of this Code and 41 USC § 4341. The Council shall cooperate to the fullest extent practicable with federal agencies to ensure coordination and to avoid duplication with applicable federal environmental impact statement requirements.

b. When an application for a certificate under this chapter is received by the Commission, the Commission shall notify the Council and shall provide for public notice of the filing of the application and the Council shall promptly convene one or more scoping meetings of representatives of all state agencies having jurisdiction over the likely or possible environmental impacts of the proposed pipeline. The Council shall allow representatives of federal agencies, interested organizations and individuals to participate in such meetings. The purpose of the scoping meetings will be to determine the range of actions, alternatives and impacts to be considered in the environmental impact statement, to identify and eliminate inappropriate, irrelevant and insignificant issues, and to identify other state and federal agency review and consultation requirements that may be coordinated with the statement and to incorporate the statement into the Commission's proceedings on the application for a certificate. On the basis of these meetings and such other factors as the Council may deem appropriate, the Council shall specify the factors to be included in the environmental impact statement. The applicant shall then prepare a draft statement and submit it to the Council. The Council shall circulate it to participants in the scoping meetings. The Council shall thereafter consult with and obtain the comments of all agencies having jurisdiction or special expertise with respect to any significant environmental impacts identified in the draft statement. The Council shall

provide for public notice of the draft statement and shall afford all interested parties an opportunity to file comments thereon and may, if deemed appropriate, conduct public hearings thereon. The applicant shall prepare and file with the Council a final environmental impact statement considering the comments of agencies or other persons on the draft statement. The Council shall conduct its review and provide its findings regarding the environmental impacts of the project and the adequacy of the final environmental statement to the Commission in a timely manner for consideration in its proceedings on the application for a certificate of convenience and necessity.

c. In making its finding pursuant to § 56-533(4), the Commission shall first determine:

(1) That all necesssary state and federal environmental permits, licenses or other such approvals have been obtained by the applicant, or, if they have not been obtained, that the certificate of convenience and necessity is to be conditioned upon the applicant obtaining such permits or licenses, which shall be specifically identified in the certificate, prior to the commencement of construction;

(2) That the location, design, construction and operation of the coal pipeline will avoid, or mitigate to the extent feasible, any significant adverse effects on the environment or natural resources which may reasonably be expected to result from the project including, but not limited to, the following:

(a) that the project will avoid, to the extent feasible, permanent destruction of agricultural uses existing at the time of the application and will avoid, to the extent feasible, long-term diminishment of agricultural land;

(b) that the project will not result in a harmful encroachment upon or damage to the critical habitat of any threatened or endangered plant or animal species then identified as such on the lists of threatened and endangered species published by the United States Fish and Wildlife Service pursuant to the Endangered Species Act of 1973 or applicable state law, unless there is no feasible alternative, and all reasonable measure to mitigate harm will be taken;

(c) that the project will avoid locations which encroach upon or damage wetlands as defined pursuant to Section 404 of the Clean Water Act, and applicable state statutes, unless the applicant demonstrates that alternative locations substantially increase the cost of the project and further provided that, if the project is located in a wetlands area, all reasonable measures to minimize long-term damage to such wetlands are undertaken by the applicant;

(d) that the project will avoid, to the extent feasible, encroachment upon or permanent destruction of parkland, wildlife management areas, public recreational areas, and historical and archeological sites;

(e) that the pipeline route, where practicable, will (i) avoid existing residences and farm buildings and (ii) follow existing public service corporation and highway rights-of-way; and

(f) that the line pipe components of pipeline facilities will be located underground wherever environmentally advantageous and whenever practicable.

d. For the purpose of making the findings called for under § 56-533(4) herein, the Commission may adopt determinations made by local, state or federal agencies having primary jurisdiction over the subject matter of § 56-533(4) as constituting the necessary finding or findings.

e. The Virginia State Water Control Board shall not issue any permit to the operator of a coal pipeline for any discharge to state waters unless and until the Board shall:

(1) Review and analyze all pollutants proposed for discharge to state waters from the coal pipeline and associated facilities. Where the Board finds that the discharge of any pollutant would contravene the requirements set forth below as conditions (i), (ii) and (iii), the Board shall not permit such discharge without first determining and adopting appropriate water quality standards and effluent limitations for that pollutant sufficient to ensure (i) that any discharge from such proposed coal pipeline will not interfere directly or indirectly with reasonable, beneficial uses of the receiving waters, (ii) that human, animal, plant and indigenous aquatic life will be protected with an ample margin of safety from any adverse effects of the effluent discharge, and (iii) that any toxic components identified in the discharge shall not be discharged in toxic amounts; and

(2) Require the effluent from any such coal pipeline to be subjected to such monitoring, including, but not limited to, biomonitoring, for such period of time as the Board deems necessary to determine that the operation of any such coal pipeline is in compliance with the provisions of this paragraph e of this section.

f. In addition to other restrictions applicable to utilization of surface water by a coal pipeline, the State Water Control Board shall, prior to the commencement of construction of any water utilization facilities for any coal pipeline, and after consultation with appropriate state and federal agencies, political subdivisions and interested organizations or individuals, establish such conditions for utilization of water by the pipeline which the Board deems necessary in order to maintain instantaneous stream flows at the pipeline point of origin for the purposes of water quality standard compliance and support of all indigenous aquatic life, aquatic habitat, wildlife, wildlife habitat, recreational uses and public water supplies. Establishment of such conditions by the Board will not have the effect of approving any utilization of water by a coal pipeline which is otherwise restricted or prohibited by law.

g. All portions of a coal pipeline which are proposed to be located aboveground, including, but not limited to, coal gathering and collection facilities, pumping stations and dewatering facilities, shall conform to the requirements of § 15.1-456 of the Code of Virginia relating to local comprehensive plans. Approval by the Commission of the location of portions of the pipeline which are proposed to be located underground shall satisfy the requirements of § 15.1-456 provided that notice of the proposed location of any such underground facilities, together with an opportunity to participate in the Commission deliberations thereon, is given to the affected local governing body.

§ 56-534. Liabilities for illegal discharge.—Any coal pipeline public service corporation causing or permitting any unauthorized discharge from such pipeline into state waters or air or onto the land of any person, including the Commonwealth, or a political subdivision thereof, shall be liable to the Commonwealth, a political subdivision thereof, or to any such person for all costs of cleanup, abatement, containment, removal and disposal of the coal and all property or natural resources damage incurred as a result of such discharge. Each coal pipeline operator, prior to the commencement of operation, shall file with the State Water Control Board an accident mitigation and spill removal plan, which shall be subject to the approval of the Board, and which shall impose on the operator the duty to

abate, contain, remove and dispose of any unauthorized discharge from the coal pipeline. In any suit to enforce claims under this paragraph, it shall not be necessary for the Commonwealth, a political subdivision thereof, or any other person showing property or natural resources damage to plead or prove negligence in any form or manner. There shall be no such liability if the discharge was caused solely by (i) an act of God, (ii) an act of war or (iii) an act or omission of a third party, or any combination of the foregoing.

§ 56-535. Standing for judicial review.—Standing to seek judicial review of any determination by the Commission under this section shall be afforded to any person, firm or organization which has a direct legal interest in the outcome of any such proceeding or which engages in substantive participation in any such proceedings including, but not limited to, participation through the submission of prepared expert testimony and data.

§ 56-536. Duties; contracts.—Coal pipeline public service companies shall:

1. Have a duty to (i) serve all shippers on a first come, first serve basis, (ii) solicit the shipment of coal produced by coal producers within the coal gathering district and (iii) follow all safety rules and regulations for operation and service as determined by the Commission.

2. Have the right to contract with shippers, although the execution of these contracts shall not relieve the pipeline of its carrier obligations; and

3. Have the obligation to serve all coal producers and shippers within the coal gathering district subject to pipeline capacity limitations and existing contracts, except that all contracts for coal pipeline service may be curtailed to the extent found necessary by the State Corporation Commission to ensure adequate service to the Virginia coal industry.

§ 56-537. Rates.—A. Notwithstanding § 56-35 of the Code of Virginia, rates and charges for coal pipeline transportation services which are expressed in a contract between a coal pipeline public service company and a shipper shall not be subject to Commission investigation and regulation, except investigations into accusations of discrimination or unfair competition in regards to rates and charges shall be allowed. If the Commission finds discrimination or unfair competition resulting from contracts, the Commission may modify the contracts to eliminate these practices. To aid in the enforcement of this paragraph, all such contracts shall be filed with the Commission and shall be available for public inspection.

B. Tariff rates for coal pipeline transportation services regarding shipments governed by contracts under thirty days duration shall be filed with the Commission and shall be available for public inspection.

§ 56-538. Limitations on eminent domain.—Any coal pipeline public service company which has obtained a certificate of convenience and necessity from the Commission shall have the power to exercise the right of eminent domain, as provided in § 56-49(2), with the following restrictions:

1. The power may not be exercised for the purpose of acquiring water rights;

2. The power may be exercised only to acquire easements and not fee simple ownership interests; and,

3. The power may be exercised only for the purpose of acquiring rights-of-way on which to locate a coal pipeline as defined in this section, including easements for all

necessary access to the facilities, and shall not be exercised for acquiring rights-of-way on which to locate any other facilities or property.

§ 58-588. Report required.—Every corporation having the power of eminent domain and authorized to transmit natural gas, manufactured gas, ~~or~~ crude petroleum *or coal* and the products or by-products thereof in the public service by means of a pipeline or pipelines in Virginia, shall report annually on or before April 15 to ~~the~~ ~~Department~~ ~~or~~ the Commission ; ~~as~~ ~~the~~ ~~case~~ ~~may~~ ~~be,~~ all of its real and personal property of every description other than intangible personal property and money, as of the beginning of January 1 preceding, showing particularly in what city, town or county and magisterial district therein the property is located.

The report herein required shall be verified by the oath of the president or other proper officer or person making the same.

§ 58.664.1. Coal pipeline public service corporations.—Each coal pipeline public service corporation doing business in this Commonwealth shall pay to the Commonwealth an additional annual maximum state tax to be fixed by the State Corporation Commission equal to two-tenths of one percent of its gross receipts from business done within the Commonwealth.

However, the amount of this tax on coal pipeline public service corporations shall not exceed an estimate of the expenses to be incurred by the Commission reasonably attributable to the regulation and assessment for taxation of coal pipeline corporations as designated in § 58-503.1, including a reasonable margin in the nature of a reserve fund.

Official Use By Clerks	
Passed By The House of Delegates	**Passed By The Senate**
without amendment ☐	without amendment ☐
with amendment ☐	with amendment ☐
substitute ☐	substitute ☐
substitute w/amdt ☐	substitute w/amdt ☐
Date: _____	Date: _____
_____	_____
Clerk of the House of Delegates	Clerk of the Senate