PUC - 77

PENNSYLVANIA PUBLIC UTILITY COMMISSION
Uniform Cover and Calendar Sheet

1. REPORT DATE: August 24, 1992	2. BUREAU AGENDA NO. SEP-92-ALJ-153*
3. BUREAU: ALJ	
4. SECTION(S):	5. PUBLIC MEETING DATE: September 3, 1992
6. APPROVED BY: Chief ALJ: Allison K. Turner Director: Ext. 7-6108 Supervisor:	
7. MONITOR:	
8. PERSON IN CHARGE: ALJ CORBETT 8-645-3550	
9. DOCKET NO: C-913419	

10. (a) CAPTION (abbreviate if more than 4 lines)
(b) Short summary of history & facts, documents & briefs
(c) Recommendation

(a) Representative Daniel L. Anderson v. Bessemer & Lake Erie Railroad Company

(b) Representative Anderson filed a complaint with the Commission on June 11, 1991 against Bessemer & Lake Erie Railroad Company alleging the Rural Ridge Tunnel on Russelton Road in Indiana Township, Allegheny County, is in a deteriorated condition and in need of repair. B&LE filed an answer asserting no repairs nor any further inspection of the subject structure is necessary at this time. A hearing was held on January 30, 1992 in Pittsburgh. Indiana Township filed a main brief, in which Representative Anderson joined. B&LE filed a main and reply brief.

(c) In a Recommended Decision, Judge Corbett found that sufficient evidence exists to warrant an inspection of the subject structure and recommended that B&LE, at its initial cost and expense, prepare and submit an in-depth inspection report of the structure within six months. It was recommended that the report include, but not be limited to, a structural analysis of the structure, a recommendation for any work necessary to the structure and estimates of costs to perform any recommended work. It was recommended that B&LE be assigned maintenance of the stucture and PennDOT assigned maintenance of the involved highway.

DOCKETED
NOV 18 1992

Recommended Decision served: July 15, 1992
Exceptions filed by: Bessemer and Lake Erie Railroad Company, 7-31-92
Reply Exceptions filed by: Department of Transportation, 8-14-92

THIS CASE IS TO BE ASSIGNED TO THE BUREAU OF SAFETY & COMPLIANCE, RAIL SAFETY DIVISION TO MONITOR THIS PROCEEDING DURING THE PREPARATION OF THE IN-DEPTH INSPECTION REPORT.

10.	MOTION BY:	Commissioner Chm. Rolka	Commissioner	Holland - Yes
			Commissioner	
	SECONDED:	Commissioner Rhodes	Commissioner	

CONTENT OF MOTION: The Decision of ALJ Corbett be adopted as the action of the Commission.

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
P.O. BOX 3265, HARRISBURG, PA 17105-3265

AMW

September 4, 1992

IN REPLY PLEASE
REFER TO OUR FILE

C-913419

HONORABLE DANIEL L ANDERSON
REP DISTRICT 31 US CONGRESS
4767 ROUTE 8
ALLISON PARK PA 15101

Representative Daniel L. Anderson
v.
Bessemer & Lake Erie Railroad Company

To Whom It May Concern:

This is to advise you that an Order has been adopted by the Commission in Public Meeting on September 3, 1992 in the above entitled proceeding.

A copy of this Order has been enclosed for your records.

Very truly yours,

John G. Alford, Secretary

FOR SIMILAR LETTER SEE RECOMMENDED DECISION DATED JULY 15, 1992

smk
Encls.
Cert.Mail

PENNSYLVANIA
PUBLIC UTILITY COMMISSION
Harrisburg, PA 17105-3265

Public Meeting held September 3, 1992

Commissioners Present:

David W. Rolka, Chairman
Joseph Rhodes, Jr., Vice Chairman
Wendell F. Holland, Commissioner

Representative Daniel L. Anderson

v. C-913419

Bessemer & Lake Erie Railroad Company

O R D E R

BY THE COMMISSION:

We adopt as our action the Recommended Decision of Administrative Law Judge John H. Corbett, Jr. dated July 1, 1992, and that Exceptions be denied; THEREFORE,

IT IS ORDERED:

1. That the Bessemer & Lake Erie Railroad Company, at its initial cost and expense, within six months of the date of service of the Commission's Order, prepare and submit to the Commission and the parties of record an in-depth inspection report of the structure; the said report must include, but need not be limited to, a structural analysis of the structure, a recommendation for any work necessary to the structure and estimates of costs to perform any recommended work.

2. That the Bessemer & Lake Erie Railroad Company and the Pennsylvania Department of Transportation cooperate with each other in the preparation of the inspection report in accordance with this Order.

3. That the Bessemer & Lake Erie Railroad Company, at its initial cost and expense, furnish all materials and do all work necessary to maintain the structure and its facilities at the subject crossing in a safe and satisfactory manner, during the interim period until a further Order is issued.

4. That the Pennsylvania Department of Transportation, at its initial cost and expense, maintain the existing public highway, shoulder, guide rails and drainage structures within the legal right-of-way at the subject crossing, during the interim period until a further Order is issued.

5. That upon completion of the in-depth inspection report with recommendation, another hearing be held to resolve the remaining issues involved in this proceeding.

BY THE COMMISSION,

John G. Alford
Secretary

(SEAL)

ORDER ADOPTED: September 3, 1992

ORDER ENTERED: SEP - 4 1992

Commonwealth of Pennsylvania
Pennsylvania Public Utility Commission
PO Box 3265, Harrisburg, PA 17105-3265

November 15, 1996

IN REPLY PLEASE REFER TO OUR FILE

In Re: C-00913419

(See letter dated 11/25/91)

Representative Daniel L. Anderson
v.
Bessemer and Lake Erie Railroad Company

Requests necessary repairs be done to Rural Ridge Tunnel on Russelton Road, Indiana Township.

Hearing Notice

This is to inform you that a hearing on the above-captioned case will be held as follows:

Type: **Further**

Date: **Wednesday, January 29, 1997**

Time: **10:00 a.m.**

Location: **11th Floor hearing room**
Pittsburgh State Office Building
300 Liberty Avenue
Pittsburgh, Pennsylvania

Presiding Officer: **Administrative Law Judge John L. Corbett**
1103 Pittsburgh State Office Building
300 Liberty Avenue
Pittsburgh, PA 15522
Telephone: (412) 565-3550

We have enclosed a list of questions prepared by the Bureau of Transportation & Safety indicating information to be developed at the hearing along with other relevant testimony.

Each party should submit testimony and exhibits with respect to the entire crossing alteration project with the understanding that the Commission may, in determining this matter, take jurisdiction over any portion of the project.

If any party intends to offer prepared written testimony, the testimony must be served on the presiding officer and each party at least 20 days prior to the hearing unless a different schedule has been ordered by the presiding officer.

The Commission's rules require that all parties, except for those individuals appearing on their own behalf, be represented by counsel. Therefore, you should have an attorney of your choice file an entry of appearance before the scheduled hearing.

If you intend to file exhibits, 2 copies of all hearing exhibits to be presented into evidence **must** be submitted to the court reporter. An additional copy **must** be furnished to the presiding officer. A copy **must** also be provided to each party of record.

If you are a person with a disability, and you wish to attend the hearing, we may be able to make arrangements for your special needs. Please call Norma Lewis at the Public Utility Commission:

- Scheduling Office: (717) 787-1399
- AT&T Relay Service number for persons who are deaf or hearing impaired: 1-800-654-5984.

pc: Judge Corbett
John Frazier - BPL Rm. 101
Dave Hart - T&S, Rail Div.
Norma Lewis
Stephen L. Springer, Scheduling Officer
Calendar File
Beth Plantz
Docket Section

C-00913419 QUESTIONS AND PROCEDURE November, 1996

1. Bessemer and Lake Erie Railroad Company (B&LE) describe the general physical condition of the substructure and superstructure of the bridge and state whether there are any changes in the condition of the bridge since the Commission's September 4, 1992 order in this proceeding.

2. B&LE submit the most recent bridge inspection report of the subject structure.

3. B&LE state its recommendations as a result of the most recent inspection report as to any alterations or repairs to the structure that it deems necessary to maintain a safe crossing at this location and what portion of any such alterations it would agree to perform.

4. B&LE state the nature and type, extent, date, cost and any pertinent specific details as to any recorded substantial items of maintenance and/or repair performed on the existing structure by the Railroad or its contractor since the Commission's September 4, 1992 order in this proceeding.

5. Pennsylvania Department of Transportation (PennDOT) state its recommendations as a result of the most recent inspection report as to any alterations or repairs to the structure that it deems necessary to maintain a safe crossing at this location and what portion of any such alterations it would agree to perform.

6. PennDOT state the nature and type, extent, date, cost and any other pertinent specific details as to any recorded substantial items of maintenance and/or repair performed on the existing structure by it or its contractor since the Commission's September 4, 1992 order in this proceeding.

7. Query whether any of the other parties desires to submit any additional testimony, exhibits or proposals relevant to this proceeding.

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ORIGINAL

ECKERT SEAMANS CHERIN & MELLOTT

ATTORNEYS AT LAW

42ND FLOOR
600 GRANT STREET
PITTSBURGH, PA 15219
(412) 566-6000

FACSIMILE (412) 566-6099
TELEX 866172

TIMOTHY S.COON
(412) 566-1214

February 3, 1993

FEB 5 1993

John G. Alford, Secretary
Pennsylvania Public Utility Commission
Room B-18, North Office Building
North Street & Commonwealth Avenue
Harrisburg, PA 17120

RE: Representative Daniel L. Anderson v. Bessemer & Lake Erie Railroad Company; No. C-913419

Dear Mr. Alford:

Please file the enclosed original and 9 copies of Indiana Township's Reply to the Report of Compliance filed by Bessemer & Lake Erie Railroad Company. If you have any questions with regard to this filing, please contact me.

Very truly yours,

Timothy S. Coon

TSC/kls

Enclosures

cc: All Counsel of Record
Honorable John H. Corbett, Jr.

DOCUMENT FOLDER

ORIGINAL

DOCUMENT FOLDER

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Representative Daniel L. Anderson No. C-913419

v.

DOCKETED

FEB 17 1993

Bessemer & Lake Erie Railroad Company

REPLY TO REPORT OF COMPLIANCE

Indiana Township submits the following Reply to the January 29, 1993 Report of Compliance ("Report") filed by Bessemer & Lake Erie Railroad Company ("B&LE"), with regard to B&LE's inspection of the Rural Ridge Tunnel on Russellton Road in Indiana Township, Allegheny County, Pennsylvania. In paragraph 3 of its Report, B&LE suggests that it should be reimbursed, in part, by Indiana Township for the cost of the inspection citing at its sole reason the fact that Indiana Township briefly questioned a PennDot engineer regarding whether he thought an inspection might be warranted in light of the facts adduced at the hearing.

At the hearing, B&LE acknowledged sole responsibility for maintenance of the tunnel. Indiana Township has no such responsibility and, as the record reflects, the tunnel is in place solely to serve the railroad passing over Russellton Road. Moreover, Russellton

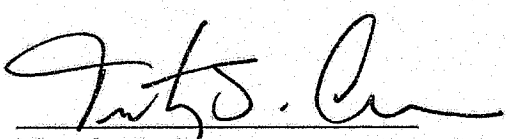
Road is a state-maintained road, and Indiana Township does not have responsibility with regard to road maintenance or tunnel maintenance.

The testimony at the hearing showed that, since the turn of the century when the tunnel was constructed, B&LE has conducted no testing of the structural stability of the tunnel except for an annual visual inspection, which is limited to looking at the tunnel and tapping random portions of the concrete with a hammer. B&LE's engineer acknowledged that there were a number of non-destructive tests that could be performed to analyze the structural stability of the tunnel, and admitted that B&LE had never performed such tests.

B&LE is simply wrong in its assertion that the decision to order the inspection was based solely on the PennDot engineer's testimony. Testimony established that pieces of concrete continually spall from the arch of the tunnel, falling onto the roadway and creating traffic hazards. In fact, a resident who testified at the hearing stated that he observed a large piece of concrete fall directly in front of his automobile as it was passing through the tunnel. Additionally, B&LE's engineer admitted that on occasion B&LE has had to remove large pieces of concrete from the face of the tunnel which had loosened and created a public hazard. Photographs submitted by various parties showed obvious deterioration of the concrete. Based on the totality of the evidence, Judge Corbett correctly concluded that an inspection of the tunnel was warranted and that the cost of such inspection should lie with B&LE -- the owner and beneficiary of the tunnel.

For the foregoing reasons, Indiana Township respectfully requests that the Commission reject B&LE's suggestion that Indiana Township should contribute to the cost of the inspection.

Respectfully submitted:



Timothy S. Coon

Eckert Seamans Cherin & Mellott
Firm I.D. No. 075
600 Grant Street, 42nd Floor
Pittsburgh, PA 15219
(412) 566-6000

Attorneys for Indiana Township

Dated: February 3, 1993

CERTIFICATE OF SERVICE

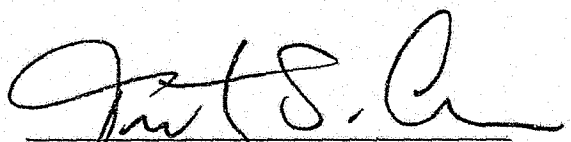
I hereby certify that a true and correct copy of the foregoing Reply to Report of Compliance was served on the following counsel of record by deposit in the United States mail, first class postage prepaid, this 3rd day of February, 1993.

John H. Corbett, Jr.
Administrative Law Judge
1103 State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222

Daniel L. Anderson
No. 31st District
House of Representative
Commonwealth of Pennsylvania
4767 Route 8
Allison Park, PA 15101

Gina M. D'Alfonso
Assistant Counsel
Commonwealth of Pennsylvania
Department of Transportation
Office of Chief Counsel
1209 State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222

Colette Ferris-Shotton
Senior Attorney and Assistant Secretary
Bessemer & Lake Erie Railroad Company
135 Jamison Lane
P.O. Box 68
Monroeville, PA 15146



Timothy S. Coon

BESSEMER AND LAKE ERIE RAILROAD COMPANY

135 JAMISON LANE • P. O. BOX 68 • MONROEVILLE, PENNSYLVANIA 15146

OFFICE OF GENERAL COUNSEL
AND SECRETARY

ORIGINAL

BTL

January 29, 1993

Via Airborne Express

Mr. John G. Alford, Secretary
Pennsylvania Public Utility Commission
Room B-18, North Office Building
North Street & Commonwealth Avenue
Harrisburg, Pennsylvania 17120

Re: Report of Compliance - 52 PA CODE § 5.591
Representative Daniel L. Anderson v.
Bessemer and Lake Erie Railroad Company
No. C-913419

Dear Mr. Alford:

Enclosed please find an original and nine (9) copies of the Bessemer and Lake Erie Railroad Company's ("B&LE") Report of Compliance ordered pursuant to the Pennsylvania Public Utility Commission's Order of September 3, 1992.

Please acknowledge receipt by date stamping the enclosed copy of this letter and returning it to me in the enclosed self-addressed, stamped envelope.

Also enclosed please find a certificate of service indicating that the Administrative Law Judge and all parties of record have been served.

Should you have any questions with regard to this filing, please contact the undersigned at (412) 829-6892.

Very truly yours,

Colette Ferris-Shotton
Colette Ferris-Shotton
Senior Attorney and
Assistant Secretary

CFS:nt
Enclosures
cc: Parties of Record
The Honorable John H. Corbett, Jr.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Representative Daniel L. Anderson v. Bessemer and Lake Erie Railroad Company	)))	No. C-913419

REPORT OF COMPLIANCE
IN-DEPTH INSPECTION REPORT OF STRUCTURE

In accordance with 52 PA CODE § 5.591, the Bessemer and Lake Erie Railroad Company ("B&LE") hereby submits its Report of Compliance - an in-depth inspection report of the Rural Ridge Tunnel on Russellton Road in Indiana Township, Allegheny County, as ordered by the Pennsylvania Public Utility Commission ("PUC") on the 3rd day of September 1992, as follows:

1. The B&LE contracted Professional Services Industries, Inc. to perform in-depth testing of the concrete arch. See Exhibit A, attached hereto and made a part hereof. Fifteen (15) cores were removed, fourteen (14) visually examined and tested for compressive strength and one (1) receiving a petrographic analysis by the Erlin Company. The compressive strength of the concrete was found to vary from 2,890 psi to 8,750 psi. The petrographic analysis results indicated that the concrete is in excellent condition and can be anticipated to perform as well in the future as it did in the past.

2. A structural analysis of the arch was performed by a registered professional engineer employed by the B&LE. See Exhibit B, attached hereto and made a part hereof. Results of this analysis revealed that maximum stress in the arch due to live load, dead load and temperature change was one-forth the allowable stress for concrete with a compressive strength equal to that of the test core with the minimum compressive strength of 2,890 psi. Therefore, it can be concluded that the arch has a structural failure safety factor of at least eight (8).

3. The results of the in-depth testing and structural analysis confirm the testimony of the B&LE's expert witness who testified that the arch is structurally sound and that additional testing and analysis was not required. The B&LE was the only party at the hearing that established that its witness had the education and experience to be an expert witness regarding concrete structures. The judge chose to ignore this testimony and ordered the in-depth inspection and analysis of the arch based upon the answers to questions posed by Indiana Township's legal representative and answered by PennDOT's employee, whose expertise on structures had not been established. Therefore, the B&LE should be reimbursed for the initial cost of the in-depth inspection and analysis with the cost shared by PennDOT and Indiana Township.

4. Attached are copies of the concrete inspection and analysis reports (Exhibit A), the structural analysis of the arch (Exhibit B) and recommendation for cosmetic repairs to the arch, Exhibit C, attached hereto and made a part hereof, that the B&LE was ordered to provide.

5. The cosmetic repairs are not needed to insure the structural soundness of the arch, but will alleviate the potential of citizen concern for concrete debris falling on the roadway. Now that the issue of the arch's structural soundness has been investigated and determined adequate, perhaps the issue of the alignment of the approach road on the east side of the arch may be addressed.

Respectfully submitted,

Colette Ferris-Shotton

Colette Ferris-Shotton
Senior Attorney and
Assistant Secretary
Bessemer and Lake Erie
Railroad Company
135 Jamison Lane
P. O. Box 68
Monroeville, PA 15146
(412) 829-6892

EXHIBITS

EXHIBIT A	PETROGRAPHIC AND DETAILED AIR VOID STUDIES OF A CONCRETE CORE WITH ATTACHMENT - PROFESSIONAL SERVICES INDUSTRIES AND TEC - THE ERLIN COMPANY
EXHIBIT B	STRUCTURAL ANALYSIS OF REPUBLIC ARCH PREPARED BY BESSEMER AND LAKE ERIE RAILROAD COMPANY, OFFICE OF CHIEF ENGINEER
EXHIBIT C	LISTING OF COSTS OF RECOMMENDED COSMETIC REPAIRS PREPARED BY BESSEMER AND LAKE ERIE RAILROAD COMPANY, OFFICE OF CHIEF ENGINEER

AFFIDAVIT

Colette Ferris-Shotton being duly sworn according to law, deposes and says that she is Senior Attorney and Assistant Secretary of the Bessemer and Lake Erie Railroad Company; that she is authorized to and does make this affidavit for it; and that the facts set forth above are true and correct to the best of her knowledge, information and belief and she expects the said Bessemer and Lake Erie Railroad Company to be able to prove the same at any hearing hereof.

Colette Ferris-Shotton

Sworn and subscribed before me
this 29th day of January, 1993.

Nancy A. Titow
Notary Public

Notarial Seal
Nancy A. Titow, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Oct. 1st, 1994

EXHIBIT A

TEC THE ERLIN COMPANY

TELEPHONE: (412) 539-1800
FAX: (412) 539-7305

1693 CLEARVIEW DRIVE
LATROBE, PA 15650

PETROGRAPHIC AND DETAILED AIR VOID STUDIES OF A CONCRETE CORE

FOR

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Russelton Bridge Project,
PSI Order No. 812-20428)

December 29, 1992

TEC THE ERLIN COMPANY

TELEPHONE: (412) 539-1800
FAX: (412) 539-7305

1693 CLEARVIEW DRIVE
LATROBE, PA 15650

December 29, 1992
TEC 1192222

PETROGRAPHIC AND DETAILED AIR VOID STUDIES OF A CONCRETE CORE

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(Russelton Bridge Project,
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* * * * * * *

SUMMARY AND DISCUSSION

The concrete is non-air-entrained and made using siliceous gravel coarse aggregate, natural siliceous sand fine aggregate, estimated portland cement contents of 5 bags per cubic yard of concrete, and an overall estimated water-cement ratio of 0.54. Hydration of the cement is advanced.

There is no evidence that the aggregates had been physically or chemically unstable (e.g. no evidence of freeze-thaw damage or alkali-silica reactions).

Water gain is prominent in the core and hydration characteristics of the cement reflect very slow hydration, such as due to use of admixtures containing retarding components. These admixtures include water-reducers and retarders. If water-reducing admixtures had been used, then they may have either been overdosed or coupled with low concrete temperatures (e.g. late fall or winter construction).

Secondary compounds are absent, and thus exposure of the concrete to moisture for prolonged periods is not indicated. To that end, the apparent relatively dry

exposure has rendered the non-air-entrained and cyclic-freezing sensitive concrete durable because it did not become critically saturated.

The concrete is in excellent condition and can be anticipated to perform as well in the future as it has in the past. The anticipated future good performance is contingent upon an environmental exposure that remains the same. Thus, care and caution should be exercised so that a moist environment (that will cause the concrete to become critically saturated) is not created.

* * * * * * *

INTRODUCTION

Reported herein are the results of petrographic and detailed air-void analyses of a concrete core. The request for the work was from C. A. Sherman of Professional Service Industries, Inc. The core was reported to be from the Russelton Bridge Project. Requested by Mr. Sherman were laboratory studies for evaluating the core so that its current condition could be assessed.

Accordingly, the core was examined using methods of ASTM C856, "Petrographic Examination of Hardened Concrete", and the modified point-count method of ASTM C457, "Microscopical Determination of Parameters of the Air-Void System in Hardened Concrete".

STUDIES

Samples - Received for the studies was a core having a diameter of 3¾ inches and identified as No. 11. The core has a nominal length of 9 inches; the top end is a formed surface; the bottom end is a fracture surface.

The formed surface has a 1/8 inch "step" along one side, which is original and was imposed by formwork configuration.

A longitudinal cross-section was cut from the core and used for the air-void analysis.

Petrographic Examination - Coarse aggregate is gravel having a nominal top size of 1 inch and constituted of a variety of components. These components include

granite, diabase, chert, greywacke, ortho-quartzite, and tramp slag. Fine aggregate is natural sand that contains the types of materials present in the coarse aggregate, plus in the intermediate and finer sizes major amounts of quartz, minor amounts of feldspars, coal, shale, and sandstone, and trace amounts of mica, and mafic minerals.

The aggregates are well graded and uniformly dispersed, and had been physically and chemically sound during their service in the concrete.

Paste is buff, relatively soft, and contains abundant relict portland cement particles. Hydration of the cement is advanced, and hydration products are coarse. The calcium hydroxide hydration component occurs as fine platelets within the paste, and reflects very slow early hydration of the portland cement. Fly ash, finely ground slag, and other mineral admixtures are absent.

Compositional and textural characteristics of the pastes are indicative of a moderate portland cement content estimated to be 5 bags per cubic yard, and an overall moderately high water-cement ratio estimated to be 0.54.

Small (e.g. 1/4 inch) localized areas of the paste, and the undersides of coarse aggregate particles, represent locations of high water-gain resulting from differential settlement of aggregate, mortar, and paste, and collections of bleed water into the "void" areas thus created. As a partial consequence, when the concrete is fractured, fractures circumscribe aggregate particles because of the poor bond thus created.

Because of the moderately high water-cement ratio and pronounced differential settlement, the concrete is judged to be of mediocre quality, at least relative to physical properties.

Air-Void Analysis - A magnification of 75X was used.

The determined air content is 1.2 percent; the specific surface is 260 in^2/in^3; and the void spacing factor is 0.027 inch.

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The air occurs as relatively coarse non-spherical voids characteristic of entrapped air, and as void space due to water gain along the undersides of coarse aggregate particles and in the mortar.

The Erlin Company

Bernard Erlin, Petrographer
Project Manager

BE:vdp

Samples will be discarded after three months unless other disposition is requested. Charges may be made for storage after that period.

EXHIBIT A
ATTACHMENT

Professional Service Industries, Inc.
Pittsburgh Testing Laboratory Division

812-20428-1
December 29, 1992

CLIENT'S NO. P. O. NO. 27884-59-01

REPORT OF	:	DRILLING AND TESTING OF CONCRETE CORES
REPORT FOR	:	BESSEMER AND LAKE ERIE RAILROAD COMPANY 135 JAMISON LANE P. O. BOX #68 MONROEVILLE, PENNSYLVANIA 15146 ATTENTION: MR. R. J. JANUS
PROJECT	:	RUSSELLTON BRIDGE - PLAN NO. X-21
Dates Drilled	:	11-3, 11-4, 11-7
Technicians	:	E. Roach, J. Scott, D. Asbury, W. Naughton
Tests Requested	:	1) Visual Examination 2) Compressive Strengths 3) Chloride Contents 4) Petrographic Analysis

Rec 1/4/93 DEK

850 Poplar Street • Pittsburgh, PA 15220 • Phone: 412/922-4010 • Fax: 412/922-4014

VISUAL EXAMINATION

Core No. 1	Concrete sound thru 12" of core
Core No. 2	Concrete sound thru 12" of core
Core No. 3	Concrete fractured from 0 - 4" sound concrete last 8".
Core No. 4	Concrete fracture from 0 - 6", sound concrete from 6" to 14" depth
Core No. 5	Concrete sound thru 12" of core
Core No. 6	Concrete sound thru 12" of core. Resteel from 10" to 11" depth no deterioration.
Core No. 7	Concrete sound thru 10" of core, hit re-steel from 10" to 12". No deterioration around re-steel.
Core No. 8	Concrete sound thru first 10" hit re-steel from 10" to 12". Concrete showed some deterioration around re-steel.
Core No. 9	Concrete sound thru 12" of core.
Core No. 10	Concrete showed some slight cracking from 0 thru 6" of core, from 6 thru 12" sound concrete.
Core No. 11	Concrete 0 thru 7" was sound. 7" thru 12" showed some deterioration.
Core No. 12	Petrographic Examination.
Core No. 13	Concrete sound thru 12" of core.
Core No. 14	Concrete sound thru 12" of core.
Core No. 15	Concrete sound thru 12" of Core.

COMPRESSIVE STRENGTHS

Core Number	Length (In.)	Diameter (In.)	Area (In. 2)	L/D Correction Factor	Total Load (Lbs.)	P.S.I.
1	6.98	3.70	10.75	.995	39,500	3660
2	5.00	3.70	10.75	.942	85,000	7450
3 *	6.98	3.70	10.75	.995	42,900	3970
4 *	7.10	3.70	10.75	.998	47,500	4410
5	7.00	3.70	10.75	.995	55,000	5090
6	7.10	3.70	10.75	.998	46,000	4270
7	5.85	3.70	10.75	.966	42,500	3820
8	4.96	3.70	10.75	.941	100,000	8750
9	7.25	3.70	10.75	1.000	54,500	5070
10	7.12	3.70	10.75	.998	68,500	6360
11	6.00	3.70	10.75	.970	32,000	2890
12		PETROGRAPHIC	ANALYSIS			
13	5.23	3.70	10.75	.949	63,500	5610
14	4.42	3.70	10.75	.917	80,000	6820
15	7.30	3.70	10.75	1.000	62,000	5770

812-20428-1

	%	Lbs./Ft.^{3}		%	Lbs./Ft.^{3}
#1 Top	0.02	0.028	13 Top	0.04	0.055
12"	0.01	0.014	12"	0.01	0.014
#2 Top	0.04	0.055	14 Top	0.05	0.069
12"	0.01	0.014	12"	0.01	0.014
#3 Top	0.05	0.069	15 Top	0.07	0.097
12"	0.01	0.014	12"	0.01	0.014
#4 Top	0.10	0.138			
12"	0.01	0.014			
#5 Top	0.09	0.124			
12"	0.01	0.014			
#6 Top	0.02	0.028			
12"	0.01	0.014			
#7 Top	0.04	0.055			
12"	0.01	0.014			
#8 Top	0.03	0.041			
12"	0.01	0.014			
#9 Top	0.07	0.097			
12"	0.01	0.014			
#10 Top	0.10	0.138			
12"	0.01	0.014			
#11 Top	0.09	0.124			
12"	0.01	0.014			
#12 Top	0.11	0.152			
12"	0.01	0.014			

PETROGRAPHIC ANALYSIS

SEE ATTACHED REPORT

PROFESSIONAL SERVICE INDUSTRIES, INCORPORATED
PITTSBURGH TESTING LABORATORY DIVISION

CAS/mb

3-Bessemer and Lake Erie Railroad Company

EXHIBIT B

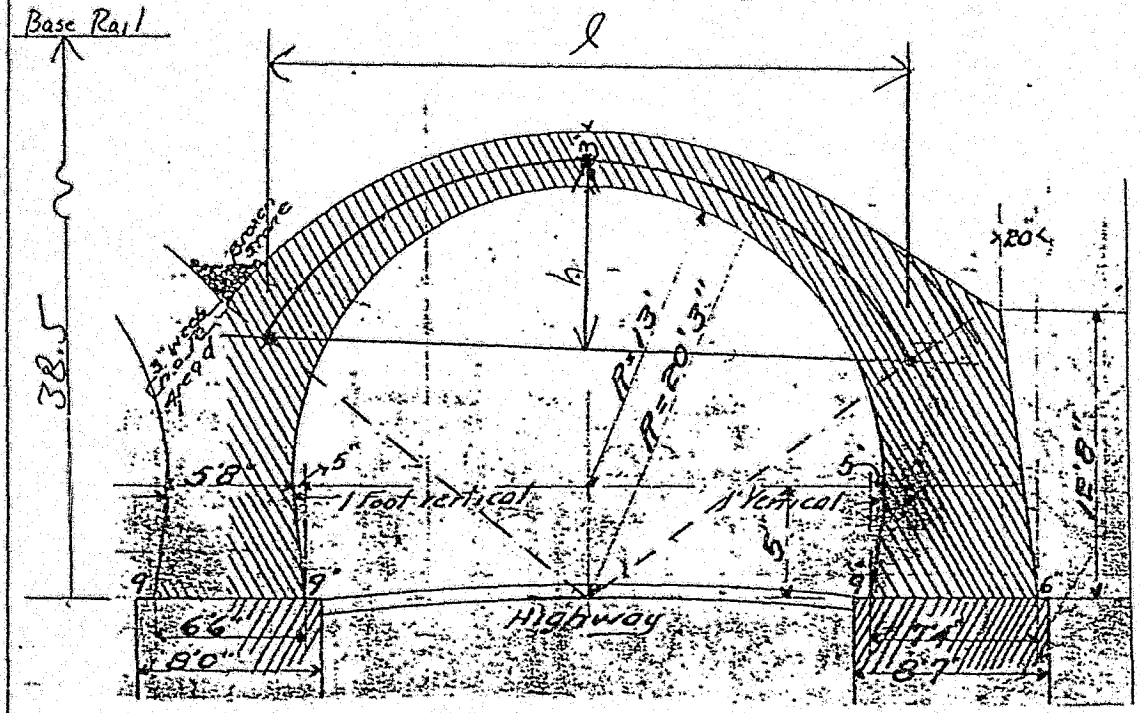
STRUCTURAL ANALYSIS OF REPUBLIC ARCH 7.77 - BR. 12

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

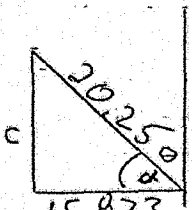
SHEET 1 OF 13
CALC. BY R.J.J DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 - Analyze Arch 7.77

REFERENCE:



Needed: h, ℓ, spring line



$(15.833)^2 + c^2 = (20.25)^2$

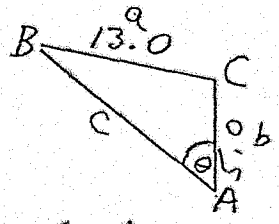
$c^2 = (20.25)^2 - 15.833^2$

$c = 12.62'$

$\cos\alpha = \frac{15.833}{20.25}$

$\alpha = 38.566°$

$\theta = 90° - 38.566° = 51.434°$



$\frac{c}{\sin C} = \frac{a}{\sin A}$

$c = \frac{a}{\sin A} \times \sin C$

$c = \frac{13.0}{\sin 51.434} \times \sin(180 - 51.434 - 17.5 = 111.06)$

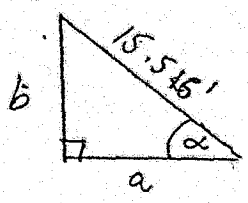
$c = 15.516'$

$\sin B = \frac{\sin A}{a} \times b$

$= \frac{\sin 51.434°}{13.0} \times 5.0$

$= .30$

$B = 17.50°$



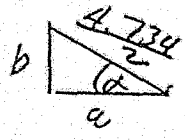
$\sin\alpha = \frac{b}{15.515}$

$b = 9.672'$

$\cos\alpha = \frac{a}{15.515}$

$a = 12.131'$

$20.25' - 15.516' = 4.734' =$ spring line



$\sin\alpha = \frac{b}{2.367}$

$b = 1.476'$

$\cos\alpha = \frac{a}{2.367}$

$a = 1.851'$

$\ell = (12.131' + 1.851') \times 2 = 27.96' \approx 28'$

$h = 20.25' - \frac{2.25}{2} - 9.672' - 1.476' = 7.98' \approx 8'$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 5 OF 13
CALC. BY RJJ DATE 1-19-93
CK. BY ____ DATE ____

PROJECT: Br. 12 Analyze Arch 7.77

REFERENCE:

Dead Load @ Crown — A.R.E.A 8.2.2.3

Track - 200 #/ft x 1/2	100 #
Ballast, fill - 120 #/cf x 1' x 1' x 18.25'	2190 #
Concrete 2.25' x 1' x 1' x 150 #/cf	340 #
	2630 #

Live Load: $8000\ \#/ft \div (8.5'_{tie} + 18.25'_{fill}) = 300\ \#$

$\ell = 28'$

$h = 8'$

$r = \frac{h}{\ell} = \frac{8}{28} = .286$

$u_s = \frac{te\ (\text{spring thick.})}{to\ (\text{crown thick.})} = \frac{4.734}{2.25} = 2.1$

$w_c = 2630\ \#$

$w = 300\ \#$

ω = coeff. of linear exp. $= 6 \times 10^{-6}$

$E = 288 \times 10^6$ (Design of Concrete Structures)

$t = +20°$ or $-30°$

$\omega t E = 6 \times 10^{-6} \times 30 \times 288 \times 10^6 = 51840$

$I_o = \frac{1}{12} \cdot 1 \times (2.25)^3 = .95\ ft^4$

$A_o = 2.25 \times 1 = 2.25\ sf.$

$w\ell = 300 \times 28 = 8400\ \#$

$w\ell^2 = 235{,}200\ \#$

$I_s = \frac{1}{12} \times 1' \times (4.734)^3 = 8.84\ ft^4$

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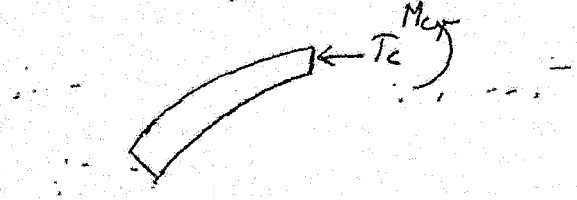
Office of Chief Engineer - Monroeville, Pa.

SHEET 4 OF 13
CALC. BY _____ DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch 7.77

REFERENCE:

Use Cochrane's equations for analysis. If stresses approach fc, analyze by different method (Design of Concrete Structures, others)



Analyze for Maximum positive moment at crown and maximum negative moment at springline as these produce the most stress.

Dead Load Thrust:

$$T_{c_{DL}} = -\left(\frac{1+3r}{8r} w_c\right)$$

$$T_{c_{DL}} = -\frac{1+3\times.286}{8\times.286} \times 2630 \times 28'$$

$$T_{c_{DL}} = -59,800\#$$

$M_{c_{DL}}$ assumed = 0

Live Load for Maximum Positive Moment @ Crown

$$T_{CLL} = -\frac{57.6 + (189 - 8u_s)r - 220r^2}{1000r} \times w\ell$$

$$T_{CLL} = -\frac{57.6 + (189 - 8 \cdot 2.1).286 - 220(.286)^2}{1000 \times .286} \times 8400$$

$$T_{CLL} = -\frac{57.6 + 49.25 - 13}{286} \times 8400$$

$$T_{CLL} = -2610\#$$

$$M_{CLL} = \frac{72 + 105r + 220r^2 - (17 + 10r)u_s + 1.5u_s^2}{10,000} \times w\ell^2$$

$$M_{CLL} = \frac{72 + 105 \times .286 + 220(.286)^2 - (17 + 10 \times .286)2.1 + 1.5(2.1)^2}{10,000} 235,20$$

$$M_{CLL} = \frac{72 + 30.03 + 18 - 41.71 + 6.62}{10000} \times 235,200$$

$$M_{CLL} = 2000'\#$$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 6 OF 13
CALC. BY RJJ DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch 7.71

REFERENCE:

Live Load For Max. Negative Moment @ Crown

$$T_{cLL} = -\frac{57.8+2u_s+(10+30u_s)r-(380+30u_s)r^2}{1000r}\,w\ell$$

$$T_{cLL} = -\frac{57.8+2\cdot2.1+(10+30\cdot2.1).286-(380+30\cdot2.1)(.286)^2}{1000(.286)}\times 840$$

$$T_{cLL} = -\frac{57.8+4.2+20.88-36.24}{286}\times 8400$$

$$T_{cLL} = -1370^{\#}$$

Due to Temperature change @ Crown

$$T_{cT} = \left[19.4u_s-7.5+(17u_s-31)r-140(u_s-1)r^2\right]\frac{wtEI_o}{h^2}$$

$$T_{cT} = \left[19.4\cdot2.1-7.5+(17\cdot2.1-31)(.286)-140(2.1-1)(286)^2\right]\frac{51840\cdot9}{(8)^2}$$

$$= [40.74-7.5+1.34-12.6]\,769.5$$

$$T_{cT} = +16910^{\#}$$

$$M_{cT} = (38.5-12.8u_s+1.6u_s^2)\frac{hT_{cT}}{100}$$

$$M_{cT} = (38.5-12.8\cdot2.1+1.6(2.1)^2)\frac{8\cdot16910}{100}$$

$$M_{cT} = (38.5-26.88+7.06)\,1352.8$$

$$M_{cT} = +25270'^{\#}$$

SECTION AT SPRINGING:

Dead Load

$$V_S = -\frac{2+15r}{4} w_c \ell$$

$$V_S = -\frac{2+15(.286)}{4} \times 2630 \times 28$$

$$V_S = -115800\ \#$$

$$T_{S_{DL}} = -\sqrt{T_{C_{DL}}^2 + V_S^2}$$

$$T_{S_{DL}} = -\sqrt{(59{,}800)^2 + (115800)^2}$$

$$T_{S_{DL}} = -130330\ \#$$

Live Load For Maximum Negative Moment

$$T_{S_{LL}} = -\frac{27.6 + (125+6U_S)r + 320r^2}{1000r} \times w\ell$$

$$T_{S_{LL}} = -\frac{27.6 + (125+6(2.1)).286 + 320(.286)^2}{1000 \cdot .286} \times 8400$$

$$T_{S_{LL}} = -\frac{27.6 + 39.35 + 26.17}{286} \times 8400$$

$$T_{S_{LL}} = -2735$$

$$T_{C_{LL}} = -\left[\tfrac{1}{2} T_{m_2} - \frac{0.0026(U_S-2)^2}{r}\right] w\ell$$

where $T_{m_2} = \frac{\text{Thrust at crown for max. neg. moment @ crown}}{w\ell}$

$$= \frac{1370}{8400} = .163$$

$$T_{cLL} = -\left[\frac{1}{2}(.163) - \frac{.0026(2.1-2)^2}{.286}\right] 8400$$

$$T_{cLL} = -(.082 - .011)\,8400$$

$$T_{cLL} = -600\#$$

$$M_{sLL} = -\frac{283 - 480r - 9(4.22 - 2.8r - U_s)^2}{10000} \times w2^2$$

$$M_{sLL} = -\frac{283 - 480(.286) - 9(4.22 - 2.8(.286) - 2.1)^2}{10,000} \times 235,200'\#$$

$$M_{sLL} = -\frac{283 - 137.28 - 15.66}{10,000} \times 235,200'\#$$

$$M_{sLL} = -3060'\#$$

Temperature

$$T_{s+} = (1.13 - 2.55r)\,T_c$$

$$= (1.13 - 2.55(.286))\,16910$$

$$T_{s+} = +6780$$

$$M_{s+} = M_{c+} + hT_{c+}$$

$$= 25270 + (-8)(16910)$$

$$M_{s+} = -110,010'\#$$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 9 OF 13
CALC. BY R.J.J DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch 7.77

REFERENCE:

Average Stresses

Dead Load

$$f_{a_{DL}} = -\left[1.03 + 2.5(r+0.05)^2 - \frac{(20r+8)U_s - (U_s-1)^2}{100}\right] f_{ac_{DL}}$$

Where f_{ac} = direct stress @ crown section (psi)

$$f_{a_{DL}} = -\left[1.03 + 2.5(.286+0.05)^2 - \frac{(20(.286)+8)2.1 - (2.1-1)^2}{100}\right] \frac{59\,80^{\#}}{2.25}$$

$$f_{a_{DL}} = -(1.03 + .28 - \frac{28.81 - 1.21}{100})\,26578$$

$$f_{a_{DL}} = -27480\ \#$$

Live Load Producing Maximum Positive Moment at Crown

$$f_{a_{LL_c}} = -\left[.92 + 2.6r^3 - 0.04U_s + \frac{(6.7+33r)(4-U_s)^2}{1000}\right] f_{ac_{LL}}$$

$$f_{a_{LL_c}} = -\left[.92 + 2.6(.286)^3 - 0.04(2.1) + \frac{(6.7+33(.286))(4-2.1)^2}{1000}\right] \frac{2610}{2.25}$$

$$f_{a_{LL_c}} = -\left[.92 + .061 - .084 + \frac{(16.14)(3.61)}{1000}\right] 1160$$

$$f_{a_{LL_c}} = -1110\ \#$$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 10 OF 13
CALC. BY RJJ DATE 1-19-98
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch 7.77

REFERENCE:

For Live Load Producing Maximum Negative Moment At Springing

$$f_{a_{LL_S}} = -\left[.95 + 1.7r^2 - 0.05 u_S + \frac{(4+48r)(4-u_S)^2}{1000}\right] fac_{LL}$$

$$f_{a_{LL_S}} = -\left[.95 + 1.7(.286)^2 - 0.05(2.1) + \frac{(4+48(.286))(4-2.1)^2}{1000}\right] \frac{600}{2.25}$$

$$f_{a_{LL_S}} = -[.95 + .14 - .11 + \frac{(17.73)(3.61)}{1000}] 267$$

$$f_{a_{LL_S}} = -280\ \#$$

For Temperature Stress

$$f_{a_t} = [1.075 - 0.8r - (0.081 - 0.11r) u_S] fac_t$$

$$f_{a_t} = [1.075 - 0.8(.286) - (0.081 - 0.11(.286))2.1] \frac{16910}{2.25}$$

$$f_{a_t} = [1.075 - .23 - .10] 7516$$

$$f_{a_t} = +5600\ \#$$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 11 OF 13
CALC. BY RVJ DATE 1-19-92
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch

REFERENCE:

The following summary contains the thrust and moments due to arch shortening caused by the stresses from temperature change.

The calculation is a repetitive process based on the following: (Design of Concrete Structures)

$$\frac{\Sigma fa_c}{\omega t E} \times T_t = T_{AS}$$

$$\frac{\Sigma fa}{\omega t E} \times M_t = M_{AS}$$

$$\frac{\Sigma fa}{\omega t E} \times f_t = f_{as}$$

Σfa is then recalculated and the ratio applied again until the ratio remains constant. The actual calculations, being repetitive, were done on a PC.

Summary for Temperature Stresses at Crown

Thrust	Moment	Average Stress
+16910#	+25270'#	+5600

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UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 12 OF 13
CALC. BY RJJ DATE 1-9-92
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch

REFERENCE:

Summary For Maximum Positive Moment At Crown

	Thrust	Moment	Average Stress
Dead Load	-59,800	0	-27,480
Live Load	-2610	+2000	-1,110
Arch Shortening	+8420	+12580	+2790
Total	-53990	+14580	-25,800

Summary For Max. Negative Moment At Springing

	Thrust	Moment	Average Stress
Dead Load	-130 330	0	-27480
Live Load	-2740	-3060	-280
Arch Shortening	+3280	-53170	+2710
	-129,790	-56230	-25050

Summary For Temperature Stresses At Springing

Thrust	Moment	Average Stress
+6780	-110,010	+5600

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UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 13 OF 13
CALC. BY RJJ DATE 1-20-93
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch

REFERENCE:

UNIT STRESSES

SECTION		M	N	a	A	I	f_c*
CROWN	DL+LL+AS	+14580	-53990	2.25	2.25	.95	-287psi -47psi
SPRINGING	DL+LL+AS	-56230	-129790	4.73	4.73	8.84	-295psi -86psi

* $f_c = \frac{N}{A} \pm \frac{Ma}{2I}$ (Design of Concrete Structures)

Crown: $f_c = \frac{-53990^{\#}}{2.25 ft^2 \times 144 in^2/ft^2} \pm \frac{14580^{\prime\#} \times 2.25'}{2 \times .95 ft^{\prime\#2} \times \frac{144 in^2}{ft^2}}$

$f_c = -166.6 \pm 119.9$

$f_c = -287psi, -47psi$

Springing: $f_c = \frac{-129790}{4.73 \times 144} \pm \frac{(-56230) \times 4.73}{2 \times 8.84 \times 144}$

$f_c = -190.6 \pm (104.5)$

$f_c = -295psi, -86psi$

From cylinder tests done by PTL,
the least $f'c = 2890$
assuming f_c allow. $= .4 f'c$,
f_c allow. $= .4 \times 2890 = 1156 psi$

$\begin{matrix} 287 \\ 295 \end{matrix} < 1156$, Meets requirements.

EXHIBIT C

REPUBLIC ARCH 7.77 - BRIDGE 12

CONCRETE REPAIRS

RE: PUC ORDER C-913419

The following is an estimate for recommended cosmetic repairs to the arch:

	MATERIAL	O/S CONTR.& EQUIPMENT	LABOR
Close road for three (3) weeks		$ 5.260	
Install french drain over west spandrel wall	$ 100	600	$ 3,500
Repair spalls on southwest fact, southwest end of barrel and ten feet in from southeast end of barrel.	1,200	1,700	12,160
Scale and seal construction joint located 20 feet from west end and two (2) spalls 30 feet in from west end of south side of barrel.	200	75	1,665
T O T A L S	$ 1,500	$ 7,635	$ 17,325

NOTE: Labor rate of $275/day for total of 63 mandays.

DEK/jmh

January 22, 1993

Certificate of Service

I, Colette Ferris-Shotton, do hereby certify that on this 29th day of January 1993, I served by first class mail, postage prepaid on the following individuals:

John H. Corbett, Jr.
Administrative Law Judge
1103 State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222

Daniel L. Anderson
Member, 31st District
House of Representatives
Commonwealth of Pennsylvania
4767 Route 8
Allison Park, PA 15101

Timothy S. Coon, Esquire
600 Grant Street, 42nd Floor
Pittsburgh, PA 15219

Gina M. D'Alfonso
Assistant Counsel
Commonwealth of Pennsylvania
Department of Transportation
Office of Chief Counsel
1209 State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222

Colette Ferris-Shotton

Colette Ferris-Shotton
Senior Attorney and
Assistant Secretary
Bessemer and Lake Erie
Railroad Company
135 Jamison Lane
P. O. Box 68
Monroeville, PA 15146
(412) 829-6892

Commonwealth of Pennsylvania

Pennsylvania Public Utility Commission
PO Box 3265, Harrisburg, PA 17105-3265

November 15, 1996

JAF

IN REPLY PLEASE REFER TO OUR FILE

In Re: C-00913419

THOMAS J FOEFSTER CHAIRMAN
ALLEGHENY COUNTY COMMISSIONERS
119 COURTHOUSE
PITTSBURGH PA 15219

Representative Daniel L. Anderson
v.
Bessemer and Lake Erie Railroad Company

Requests necessary repairs be done to Rural Ridge Tunnel on Russelton Road, Indiana Township.

Hearing Notice

This is to inform you that a hearing on the above-captioned case will be held as follows:

Type:	**Further**
Date:	**Wednesday, January 29, 1997**
Time:	**10:00 a.m.**
Location:	**11th Floor hearing room** **Pittsburgh State Office Building** **300 Liberty Avenue** **Pittsburgh, Pennsylvania**
Presiding Officer:	**Administrative Law Judge John L. Corbett** 1103 Pittsburgh State Office Building 300 Liberty Avenue Pittsburgh, PA 15522 Telephone: (412) 565-3550

We have enclosed a list of questions prepared by the Bureau of Transportation & Safety indicating information to be developed at the hearing along with other relevant testimony.

Each party should submit testimony and exhibits with respect to the entire crossing alteration project with the understanding that the Commission may, in determining this matter, take jurisdiction over any portion of the project.

If any party intends to offer prepared written testimony, the testimony must be served on the presiding officer and each party at least 20 days prior to the hearing unless a different schedule has been ordered by the presiding officer.

The Commission's rules require that all parties, except for those individuals appearing on their own behalf, be represented by counsel. Therefore, you should have an attorney of your choice file an entry of appearance before the scheduled hearing.

If you intend to file exhibits, 2 copies of all hearing exhibits to be presented into evidence **must** be submitted to the court reporter. An additional copy **must** be furnished to the presiding officer. A copy **must** also be provided to each party of record.

If you are a person with a disability, and you wish to attend the hearing, we may be able to make arrangements for your special needs. Please call Norma Lewis at the Public Utility Commission:

- Scheduling Office: (717) 787-1399
- AT&T Relay Service number for persons who are deaf or hearing impaired: 1-800-654-5984.

1. Bessemer and Lake Erie Railroad Company (B&LE) describe the general physical condition of the substructure and superstructure of the bridge and state whether there are any changes in the condition of the bridge since the Commission's September 4, 1992 order in this proceeding.

2. B&LE submit the most recent bridge inspection report of the subject structure.

3. B&LE state its recommendations as a result of the most recent inspection report as to any alterations or repairs to the structure that it deems necessary to maintain a safe crossing at this location and what portion of any such alterations it would agree to perform.

4. B&LE state the nature and type, extent, date, cost and any pertinent specific details as to any recorded substantial items of maintenance and/or repair performed on the existing structure by the Railroad or its contractor since the Commission's September 4, 1992 order in this proceeding.

5. Pennsylvania Department of Transportation (PennDOT) state its recommendations as a result of the most recent inspection report as to any alterations or repairs to the structure that it deems necessary to maintain a safe crossing at this location and what portion of any such alterations it would agree to perform.

6. PennDOT state the nature and type, extent, date, cost and any other pertinent specific details as to any recorded substantial items of maintenance and/or repair performed on the existing structure by it or its contractor since the Commission's September 4, 1992 order in this proceeding.

7. Query whether any of the other parties desires to submit any additional testimony, exhibits or proposals relevant to this proceeding.

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C-00913419 QUESTIONS AND PROCEDURE November, 1996

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C-00913419 QUESTIONS AND PROCEDURE November, 1996

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COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
1103 PITTSBURGH STATE OFFICE BUILDING
300 LIBERTY AVENUE
PITTSBURGH, PENNSYLVANIA 15222-1210

IN REPLY PLEASE
REFER TO OUR FILE

January 13, 1997

Colette Ferris-Shotton, Esquire
Bessemer and Lake Erie Railroad Company
135 Jamison Lane
P.O. Box 68
Monroeville, PA 15146

Re: Representative Daniel L. Anderson v.
Bessemer & Lake Erie Railroad Company
Docket No. C-00913419

Dear Ms. Ferris-Shotton:

I have received your letter of January 6, 1997, together with the enclosed materials. Pursuant to Paragraph 5 of the Order of the Commission entered on September 4, 1992, another hearing must be held to resolve the remaining issues involved in this proceeding. The Questions and Procedures accompanying the hearing notice outlined for the parties the issues to be addressed at the time of the hearing.

If you wish to participate in this hearing, you must present a witness qualified to answer the questions stated in that outline, as well as any other questions raised by other parties upon cross-examination of your witness.

For these reasons, your request to cancel the hearing and close the record in this proceeding must be denied. If you have any questions regarding this procedure, please feel free to contact me.

I thank you for your time and attention to this matter.

Very truly yours,

John H. Corbett, Jr.
Administrative Law Judge

JHC:bjm

cc: Parties of Record
Steve Springer
File Room

DEPARTMENT OF ENGINEERING AND CONSTRUCTION

JOSEPH M. JACOBS
ACTING DIRECTOR

County of Allegheny

501 COUNTY OFFICE BUILDING • 542 FORBES AVENUE
PITTSBURGH, PENNSYLVANIA 15219-2904
PHONE (412) 350-5902 • FAX (412) 350-5386

January 28, 1997

Honorable John L. Corbett
Administrative Law Judge
Pennsylvania Public Utility Commission
1103 Pittsburgh State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222

RE: REPRESENTATIVE DANIEL L. ANDERSON
VS
BESSEMER AND LAKE ERIE RAILROAD COMPANY
C-00913419

Dear Judge Corbett:

Allegheny County had received notice of the hearing scheduled for Wednesday January 29, 1997, in the above captioned matter. Upon review of the file the County had determined that it is not necessary for the County to appear in this proceeding. Therefore, the County will not be present at the hearing on Wednesday, January 29, 1997.

I am serving a copy of this letter on the parties as indicated on the attached service list.

Very truly yours,

Howard M. Louik
Assistant Solicitor

HL/HW/dp
cc: John G. Alford, Secretary
Parties of Record
Joseph M. Jacobs/GF
Bernard Rossman, P.E.
Herbert C. Weaver, P.E.

PARTIES OF RECORD

0001
REPRESENTATIVE DAN ANDERSON
4767 ROUTE 8
ALLISON PARK PA 15101

0002
KIMBERLY J. GALLAGHER, GENERAL ATTORNEY
MR. F H MORRIS, CHIEF ENGINEER; DE. E. KEEFER
135 JAMISON LANE, P.O. BOX 68
MONROEVILLE PA 15146

0003 W. D. PICKERING, P. E. & TRENT HARGROVE
JOHN L HEATON, CHIEF COUNSEL
509 TRANSP & SAFETY BLDG
HARRISBURG PA 15146

0004
MR. LARRY DUNN, CHAIRMAN
119 COURTHOUSE
PITTSBURGH PA 15219
ALLEGHENY COUNTY COMMISSIONERS

0005
MR. MITCHELL T KOVEL, SECRETARY
P. O. BOX 788
INDIANOLA PA 15051
INDIANA TOWNSHIP

0006
F H MORRIS, CHIEF ENGINEER
COLETTE FERRIS-SHOTTON, ATTORNEY
135 JAMISON LAKE - P. O. BOX 68
MONROEVILLE PA 15156

APPEARANCE SHEET **ALJ HEARING REPORT**

Docket No. C-00913419

Case Name Rep. Daniel L. Anderson

v.

Bessemer and Lake Erie Railroad Company

Location Pittsburgh

Date January 29, 1997

ALJ Corbett

Reporting Firm Halbert/Mercer

CHECK THOSE BLOCKS WHICH APPLY:

Prehearing held	YES	NO ✓
Hearing held	YES ✓	NO
Testimony taken	YES ✓	NO
Transcript due	YES ✓	NO
Hearing concluded	YES ✓	NO
Further hearing needed	YES	NO ✓
Estimated add'l days		
RECORD CLOSED	YES	NO ✓
DATE		
Briefs to be Filed	YES ✓	NO
DATE	see below	
BENCH DECISION	YES	NO ✓

REMARKS: Upon receipt of transcript, briefing letter will be sent to parties

DOCUMENT FOLDER

RECEIVED FEB 7 AM 10:46 PA PUC SECRETARY'S OFFICE

97 JAN 30 PM 1:53 PA PUC

DOCKETED FEB 11 1997

NAMES, ADDRESSES AND TELEPHONE NUMBERS OF PARTIES OR COUNSEL OF RECORD
PLEASE PRINT CLEARLY
INCOMPLETE INFORMATION MAY RESULT IN DELAY OF PROCESS

NAME and TELEPHONE NUMBER	ADDRESS	APPEARING FOR
DAVID A SALAPA	P.O Box 3265	Pa P.U.C BUREAU OF TRANSPORTATION & SAFETY
Telephone No. (717) 783-2840	City: Harrisburg; State: Pa; Zip: 17105-3265	
Gina M. D'Alfonso	Office of Chief Counsel 9th Floor, Forum Place, 555 Walnut	Comm of PA Dept. of Transportation
Telephone No. 717-787-3128	City: Hbg; State: PA; Zip: 17101-1900	
ROBERT N. GENTILE	P.O. BOX 68 135 JAMISON LANE	BESSEMER AND LAKE ERIE RAILROAD COMPANY
Telephone No. (412) 829-6890	City: MONROEVILLE; State: PA; Zip: 15146	

☑ CHECK THIS BOX IF ADDITIONAL PARTIES OR COUNSEL OF RECORD APPEAR ON BACK.

Janet M. Jackson
REPORTER

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
1103 PITTSBURGH STATE OFFICE BUILDING
300 LIBERTY AVENUE
PITTSBURGH, PENNSYLVANIA 15222-1210

IN REPLY PLEASE
REFER TO OUR FILE

February 21, 1997

TO ALL PARTIES OF RECORD: In re: C-00913419

DOCKETED
MAR 06 1997

Representative Daniel L. Anderson v.
Bessemer and Lake Erie Railroad Company

The transcript of testimony taken in the above entitled proceeding indicates that the parties will file briefs.

In accordance with the Commission's Rules of Practice, Main Briefs shall be filed on or before March 24, 1997. Reply Briefs, if any, shall be filed on or before April 8, 1997. If Briefs are not received within the allotted time, they shall not be accepted for filing, except by special permission of the presiding officer. Your Main Briefs should be concise and must comply with 52 Pa. Code §5.501.

An original and nine (9) copies of each Main and Reply Brief must be filed with the Commission in accordance with 52 Pa. Code §1.4 and in care of the New Filing Section, Room B-20, North Office Building, Harrisburg, PA 17120. Also, one copy must be served on the presiding Administrative Law Judge and two copies on each party of record.

Very truly yours,

John H. Corbett, Jr.
Administrative Law Judge

JHC:bjm

1-29

MEMORANDUM

COMMONWEALTH OF PENNSYLVANIA
PA Public Utility Commission

DATE: February 27, 1997

SUBJECT: **Representative Daniel L. Anderson v. Bessemer & Lake Erie Railroad Company**
Docket No. C-00913419

TO: Aggie Brewster, Supervisor
Bureau of Administrative Services
Docket Section

FROM: John H. Corbett, Jr., Administrative Law Judge
Office of Administrative Law Judge

The attached exhibit (original and one copy) is in reference to the above-captioned case.

Please have this exhibit docketed and placed in the red document folder.

If you have any questions, please contact me at (412) 565-3550.

JHC:seo

Attachment (1)

DOCUMENT FOLDER

RECEIVED
SECRETARY'S BUREAU
97 FEB 28 AM 9:44

111000

BESSEMER AND LAKE ERIE RAILROAD COMPANY

135 JAMISON LANE • P. O. BOX 68 • MONROEVILLE, PENNSYLVANIA 15146

Office of
Vice President - Law,
General Counsel and
Secretary

February 3, 1997

000112

The Honorable John H. Corbett, Jr.
Administrative Law Judge
Commonwealth of Pennsylvania
Pennsylvania Public Utility Commission
1103 Pittsburgh State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222-1210

97 FEB 6 AM 9:44
RECEIVED
PROTHONOTARY'S OFFICE

Re: Representative Daniel L. Anderson v. Bessemer & Lake Erie Railroad Company
Docket No. C-00913419

Dear Judge Corbett:

At the January 29, 1997 Public Utility Commission ("Commission") hearing, you requested that the Bessemer and Lake Erie Railroad Company ("B&LE") provide you and the parties of record with a copy of its *Report of Compliance* which was ordered to be performed pursuant to the Commission's Order of September 3, 1992. Enclosed is a copy of the Report of Compliance which, at your direction, has been identified as "BLE Exhibit 8."

I have also enclosed a Certificate of Service evidencing that all parties of record have been served with a copy of this *Report of Compliance.*

Should you have any questions with regard to this matter, please contact the undersigned at (412) 829-6892.

Very truly yours,

Colette Ferris-Shotton
Senior Attorney and
Assistant Secretary

RECEIVED
FEB 04 1997
Pittsburgh Office of A.L.J.
Public Utility Commission

cc: Parties of Record

DOCUMENT
FOLDER

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Representative Daniel L. Anderson)
v. Bessemer and Lake Erie) No. C-913419
Railroad Company)

REPORT OF COMPLIANCE
IN-DEPTH INSPECTION REPORT OF STRUCTURE

In accordance with 52 PA CODE § 5.591, the Bessemer and Lake Erie Railroad Company ("B&LE") hereby submits its Report of Compliance - an in-depth inspection report of the Rural Ridge Tunnel on Russellton Road in Indiana Township, Allegheny County, as ordered by the Pennsylvania Public Utility Commission ("PUC") on the 3rd day of September 1992, as follows:

1. The B&LE contracted Professional Services Industries, Inc. to perform in-depth testing of the concrete arch. See Exhibit A, attached hereto and made a part hereof. Fifteen (15) cores were removed, fourteen (14) visually examined and tested for compressive strength and one (1) receiving a petrographic analysis by the Erlin Company. The compressive strength of the concrete was found to vary from 2,890 psi to 8,750 psi. The petrographic analysis results indicated that the concrete is in excellent condition and can be anticipated to perform as well in the future as it did in the past.

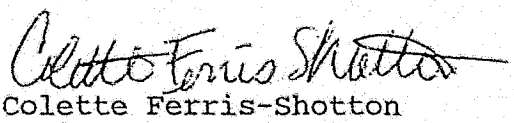
2. A structural analysis of the arch was performed by a registered professional engineer employed by the B&LE. See Exhibit B, attached hereto and made a part hereof. Results of this analysis revealed that maximum stress in the arch due to live load, dead load and temperature change was one-forth the allowable stress for concrete with a compressive strength equal to that of the test core with the minimum compressive strength of 2,890 psi. Therefore, it can be concluded that the arch has a structural failure safety factor of at least eight (8).

3. The results of the in-depth testing and structural analysis confirm the testimony of the B&LE's expert witness who testified that the arch is structurally sound and that additional testing and analysis was not required. The B&LE was the only party at the hearing that established that its witness had the education and experience to be an expert witness regarding concrete structures. The judge chose to ignore this testimony and ordered the in-depth inspection and analysis of the arch based upon the answers to questions posed by Indiana Township's legal representative and answered by PennDOT's employee, whose expertise on structures had not been established. Therefore, the B&LE should be reimbursed for the initial cost of the in-depth inspection and analysis with the cost shared by PennDOT and Indiana Township.

4. Attached are copies of the concrete inspection and analysis reports (Exhibit A), the structural analysis of the arch (Exhibit B) and recommendation for cosmetic repairs to the arch, Exhibit C, attached hereto and made a part hereof, that the B&LE was ordered to provide.

5. The cosmetic repairs are not needed to insure the structural soundness of the arch, but will alleviate the potential of citizen concern for concrete debris falling on the roadway. Now that the issue of the arch's structural soundness has been investigated and determined adequate, perhaps the issue of the alignment of the approach road on the east side of the arch may be addressed.

Respectfully submitted,



Colette Ferris-Shotton
Senior Attorney and
Assistant Secretary
Bessemer and Lake Erie
Railroad Company
135 Jamison Lane
P. O. Box 68
Monroeville, PA 15146
(412) 829-6892

EXHIBITS

EXHIBIT A	PETROGRAPHIC AND DETAILED AIR VOID STUDIES OF A CONCRETE CORE WITH ATTACHMENT - PROFESSIONAL SERVICES INDUSTRIES AND TEC - THE ERLIN COMPANY
EXHIBIT B	STRUCTURAL ANALYSIS OF REPUBLIC ARCH PREPARED BY BESSEMER AND LAKE ERIE RAILROAD COMPANY, OFFICE OF CHIEF ENGINEER
EXHIBIT C	LISTING OF COSTS OF RECOMMENDED COSMETIC REPAIRS PREPARED BY BESSEMER AND LAKE ERIE RAILROAD COMPANY, OFFICE OF CHIEF ENGINEER

AFFIDAVIT

Colette Ferris-Shotton being duly sworn according to law, deposes and says that she is Senior Attorney and Assistant Secretary of the Bessemer and Lake Erie Railroad Company; that she is authorized to and does make this affidavit for it; and that the facts set forth above are true and correct to the best of her knowledge, information and belief and she expects the said Bessemer and Lake Erie Railroad Company to be able to prove the same at any hearing hereof.

Colette Ferris-Shotton

Sworn and subscribed before me
this 29th day of January, 1993.

Nancy A. Titow
Notary Public

Notarial Seal
Nancy A. Titow, Notary Public
Mercer, Mercer County, PA
My Commission Expires Oct 1st 1994

EXHIBIT A

TEC THE ERLIN COMPANY

TELEPHONE: (412) 539-1800
FAX: (412) 539-7305

1693 CLEARVIEW DRIVE
LATROBE, PA 15650

PETROGRAPHIC AND DETAILED AIR VOID STUDIES OF A CONCRETE CORE

FOR

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Russelton Bridge Project,
PSI Order No. 812-20428)

December 29, 1992

TEC THE ERLIN COMPANY

TELEPHONE: (412) 539-1800
FAX: (412) 539-7305

1693 CLEARVIEW DRIVE
LATROBE, PA 15650

PETROGRAPHIC AND DETAILED AIR VOID STUDIES OF A CONCRETE CORE

FOR

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Russelton Bridge Project,
PSI Order No. 812-20428)

December 29, 1992

TEC THE ERLIN COMPANY

TELEPHONE: (412) 539-1800
FAX: (412) 539-7305

1693 CLEARVIEW DRIVE
LATROBE, PA 15650

December 29, 1992
TEC 1192222

PETROGRAPHIC AND DETAILED AIR VOID STUDIES OF A CONCRETE CORE

FOR

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Russelton Bridge Project,
PSI Order No. 812-20428)

* * * * * * *

SUMMARY AND DISCUSSION

The concrete is non-air-entrained and made using siliceous gravel coarse aggregate, natural siliceous sand fine aggregate, estimated portland cement contents of 5 bags per cubic yard of concrete, and an overall estimated water-cement ratio of 0.54. Hydration of the cement is advanced.

There is no evidence that the aggregates had been physically or chemically unstable (e.g. no evidence of freeze-thaw damage or alkali-silica reactions).

Water gain is prominent in the core and hydration characteristics of the cement reflect very slow hydration, such as due to use of admixtures containing retarding components. These admixtures include water-reducers and retarders. If water-reducing admixtures had been used, then they may have either been overdosed or coupled with low concrete temperatures (e.g. late fall or winter construction).

Secondary compounds are absent, and thus exposure of the concrete to moisture for prolonged periods is not indicated. To that end, the apparent relatively dry

exposure has rendered the non-air-entrained and cyclic-freezing sensitive concrete durable because it did not become critically saturated.

The concrete is in excellent condition and can be anticipated to perform as well in the future as it has in the past. The anticipated future good performance is contingent upon an environmental exposure that remains the same. Thus, care and caution should be exercised so that a moist environment (that will cause the concrete to become critically saturated) is not created.

* * * * * * *

INTRODUCTION

Reported herein are the results of petrographic and detailed air-void analyses of a concrete core. The request for the work was from C. A. Sherman of Professional Service Industries, Inc. The core was reported to be from the Russelton Bridge Project. Requested by Mr. Sherman were laboratory studies for evaluating the core so that its current condition could be assessed.

Accordingly, the core was examined using methods of ASTM C856, "Petrographic Examination of Hardened Concrete", and the modified point-count method of ASTM C457, "Microscopical Determination of Parameters of the Air-Void System in Hardened Concrete".

STUDIES

Samples - Received for the studies was a core having a diameter of 3¾ inches and identified as No. 11. The core has a nominal length of 9 inches; the top end is a formed surface; the bottom end is a fracture surface.

The formed surface has a 1/8 inch "step" along one side, which is original and was imposed by formwork configuration.

A longitudinal cross-section was cut from the core and used for the air-void analysis.

Petrographic Examination - Coarse aggregate is gravel having a nominal top size of 1 inch and constituted of a variety of components. These components include

granite, diabase, chert, greywacke, ortho-quartzite, and tramp slag. Fine aggregate is natural sand that contains the types of materials present in the coarse aggregate, plus in the intermediate and finer sizes major amounts of quartz, minor amounts of feldspars, coal, shale, and sandstone, and trace amounts of mica, and mafic minerals.

The aggregates are well graded and uniformly dispersed, and had been physically and chemically sound during their service in the concrete.

Paste is buff, relatively soft, and contains abundant relict portland cement particles. Hydration of the cement is advanced, and hydration products are coarse. The calcium hydroxide hydration component occurs as fine platelets within the paste, and reflects very slow early hydration of the portland cement. Fly ash, finely ground slag, and other mineral admixtures are absent.

Compositional and textural characteristics of the pastes are indicative of a moderate portland cement content estimated to be 5 bags per cubic yard, and an overall moderately high water-cement ratio estimated to be 0.54.

Small (e.g. 1/4 inch) localized areas of the paste, and the undersides of coarse aggregate particles, represent locations of high water-gain resulting from differential settlement of aggregate, mortar, and paste, and collections of bleed water into the "void" areas thus created. As a partial consequence, when the concrete is fractured, fractures circumscribe aggregate particles because of the poor bond thus created.

Because of the moderately high water-cement ratio and pronounced differential settlement, the concrete is judged to be of mediocre quality, at least relative to physical properties.

Air-Void Analysis - A magnification of 75X was used.

The determined air content is 1.2 percent; the specific surface is 260 in^2/in^3; and the void spacing factor is 0.027 inch.

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TEC 1192222

The air occurs as relatively coarse non-spherical voids characteristic of entrapped air, and as void space due to water gain along the undersides of coarse aggregate particles and in the mortar.

The Erlin Company

Bernard Erlin, Petrographer
Project Manager

BE:vdp

Samples will be discarded after three months unless other disposition is requested. Charges may be made for storage after that period.

EXHIBIT A
ATTACHMENT

Professional Service Industries, Inc.
Pittsburgh Testing Laboratory Division

812-20428-1
December 29, 1992

CLIENT'S NO. P. O. NO. 27884-59-01

REPORT OF	:	DRILLING AND TESTING OF CONCRETE CORES
REPORT FOR	:	BESSEMER AND LAKE ERIE RAILROAD COMPANY 135 JAMISON LANE P. O. BOX #68 MONROEVILLE, PENNSYLVANIA 15146 ATTENTION: MR. R. J. JANUS
PROJECT	:	RUSSELLTON BRIDGE - PLAN NO. X-21
Dates Drilled	:	11-3, 11-4, 11-7
Technicians	:	E. Roach, J. Scott, D. Asbury, W. Naughton
Tests Requested	:	1) Visual Examination 2) Compressive Strengths 3) Chloride Contents 4) Petrographic Analysis

Rec 1/4/93 DEK

850 Poplar Street • Pittsburgh, PA 15220 • Phone: 412/922-4010 • Fax: 412/922-4014

VISUAL EXAMINATION

Core No. 1	Concrete sound thru 12" of core
Core No. 2	Concrete sound thru 12" of core
Core No. 3	Concrete fractured from 0 - 4" sound concrete last 8".
Core No. 4	Concrete fracture from 0 - 6", sound concrete from 6" to 14" depth
Core No. 5	Concrete sound thru 12" of core
Core No. 6	Concrete sound thru 12" of core. Resteel from 10" to 11" depth no deterioration.
Core No. 7	Concrete sound thru 10" of core, hit re-steel from 10" to 12". No deterioration around re-steel.
Core No. 8	Concrete sound thru first 10" hit re-steel from 10" to 12". Concrete showed some deterioration around re-steel.
Core No. 9	Concrete sound thru 12" of core.
Core No. 10	Concrete showed some slight cracking from 0 thru 6" of core, from 6 thru 12" sound concrete.
Core No. 11	Concrete 0 thru 7" was sound. 7" thru 12" showed some deterioration.
Core No. 12	Petrographic Examination.
Core No. 13	Concrete sound thru 12" of core.
Core No. 14	Concrete sound thru 12" of core.
Core No. 15	Concrete sound thru 12" of Core.

COMPRESSIVE STRENGTHS

Core Number	Length (In.)	Diameter (In.)	Area (In. 2)	L/D Correction Factor	Total Load (Lbs.)	P.S.I.
1	6.98	3.70	10.75	.995	39,500	3660
2	5.00	3.70	10.75	.942	85,000	7450
3 *	6.98	3.70	10.75	.995	42,900	3970
4 *	7.10	3.70	10.75	.998	47,500	4410
5	7.00	3.70	10.75	.995	55,000	5090
6	7.10	3.70	10.75	.998	46,000	4270
7	5.85	3.70	10.75	.966	42,500	3820
8	4.96	3.70	10.75	.941	100,000	8750
9	7.25	3.70	10.75	1.000	54,500	5070
10	7.12	3.70	10.75	.998	68,500	6360
11	6.00	3.70	10.75	.970	32,000	2890
12		PETROGRAPHIC	ANALYSIS			
13	5.23	3.70	10.75	.949	63,500	5610
14	4.42	3.70	10.75	.917	80,000	6820
15	7.30	3.70	10.75	1.000	62,000	5770

812-20428-1

	%	Lbs./Ft.^{3}		%	Lbs./Ft.^{3}
#1 Top	0.02	0.028	13 Top	0.04	0.055
12"	0.01	0.014	12"	0.01	0.014
#2 Top	0.04	0.055	14 Top	0.05	0.069
12"	0.01	0.014	12"	0.01	0.014
#3 Top	0.05	0.069	15 Top	0.07	0.097
12"	0.01	0.014	12"	0.01	0.014
#4 Top	0.10	0.138			
12"	0.01	0.014			
#5 Top	0.09	0.124			
12"	0.01	0.014			
#6 Top	0.02	0.028			
12"	0.01	0.014			
#7 Top	0.04	0.055			
12"	0.01	0.014			
#8 Top	0.03	0.041			
12"	0.01	0.014			
#9 Top	0.07	0.097			
12"	0.01	0.014			
#10 Top	0.10	0.138			
12"	0.01	0.014			
#11 Top	0.09	0.124			
12"	0.01	0.014			
#12 Top	0.11	0.152			
12"	0.01	0.014			

PETROGRAPHIC ANALYSIS

SEE ATTACHED REPORT

PROFESSIONAL SERVICE INDUSTRIES, INCORPORATED
PITTSBURGH TESTING LABORATORY DIVISION

CAS/mb

3-Bessemer and Lake Erie Railroad Company

EXHIBIT B

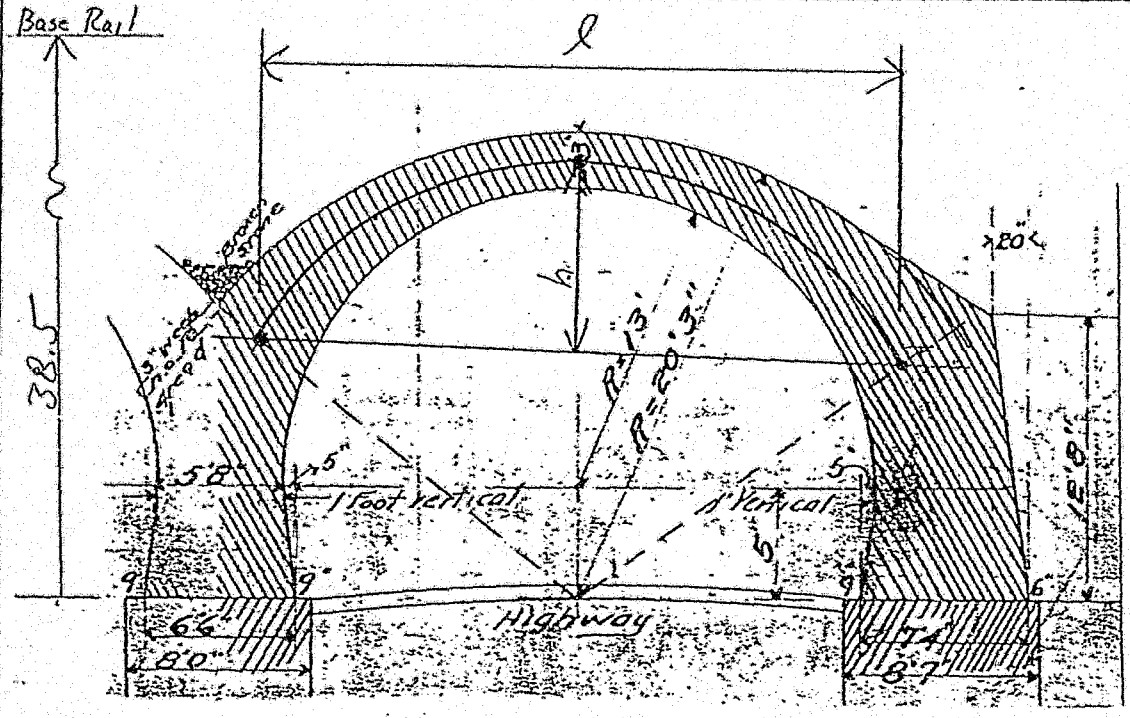
STRUCTURAL ANALYSIS OF REPUBLIC ARCH 7.77 - Br. 12

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

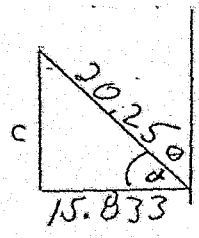
SHEET 1 OF 13
CALC. BY R.J.J. DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 - Analyze Arch 7.77

REFERENCE:



Needed: h, l, spring line



$(15.833)^2 + c^2 = (20.25)^2$

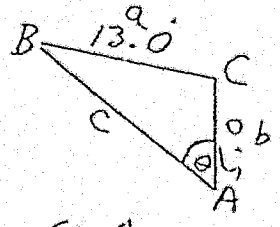
$c^2 = (20.25)^2 - 15.833^2$

$c = 12.62'$

$\cos\alpha = \frac{15.833}{20.25}$

$\alpha = 38.566°$

$\theta = 90° - 38.566° = 51.434°$



$\frac{c}{\sin C} = \frac{a}{\sin A}$

$C = \frac{13.0}{\sin 51.434} \times \sin(180 - 51.434 - 17.5 = 111.06)$

$C = 15.516'$

$\sin B = \frac{\sin A}{a} \times b$

$= \frac{\sin 51.434°}{13.0} \times 5.0$

$= .30$

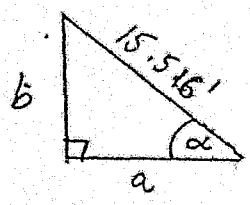
$B = 17.50°$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 2 OF 13
CALC. BY RJS DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 - Analyze Arch 7.77

REFERENCE:



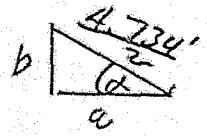
$\sin\alpha = \frac{b}{15.515}$

$b = 9.672'$

$\cos\alpha = \frac{a}{15.515}$

$a = 12.131'$

$20.25' - 15.516' = 4.734' =$ spring line



$\sin\alpha = \frac{b}{2.367}$

$b = 1.476'$

$\cos\alpha = \frac{a}{2.367}$

$a = 1.851'$

$\ell = (12.131' + 1.851') \times 2 = 27.96' \approx 28'$

$h = 20.25' - \frac{2.25'}{2} - 9.672' - 1.476' = 7.98' \approx 8'$

Dead Load @ Crown — A.R.E.A 8.2.2.3

Track - 200 #/ft x 1/2	100 #
Ballast, fill - 120 #/cf x 1' x 1' x 18.25'	2190 #
Concrete 2.25' x 1' x 1' x 150 #/cf	340 #
	2630 #

Live Load: $8000\ \#/ft \div (8.5' + 18.25') = 300\ \#$ (8.5' = fill, 18.25' = the)

$l = 28'$

$h = 8'$

$r = \frac{h}{l} = \frac{8}{28} = .286$

$u_s = \frac{te\ (\text{spring thick.})}{to\ (\text{crown thick.})} = \frac{4.734}{2.25} = 2.1$

$w_c = 2630\ \#$

$w = 300\ \#$

ω = coeff. of linear exp. $= 6 \times 10^{-6}$

$E = 288 \times 10^6$ (Design of Concrete Structures)

$t = +20°$ or $-30°$

$\omega t E = 6 \times 10^{-6} \times 30 \times 288 \times 10^6 = 51840$

$I_o = \frac{1}{12} \cdot 1 \times (2.25)^3 = .95\ ft^4$

$A_o = 2.25 \times 1 = 2.25\ sf.$

$wl = 300 \times 28 = 8400\ \#$

$wl^2 = 235,200\ \#$

$I_s = \frac{1}{12} \times 1' \times (4.734)^3 = 8.84\ ft^4$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

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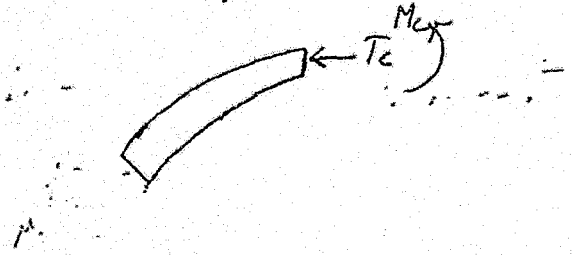
CALC. BY _____ DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch 7.77

REFERENCE:

Use Cochrane's equations for analysis. If stresses approach fc, analyze by different method (Design of Concrete Structures, others)



Analyze for Maximum positive moment at crown and maximum negative moment at springline as these produce the most stress.

Dead Load Thrust:

$$T_{c_{DL}} = -\left(\frac{1+3r}{8r}\right) w_c \ell$$

$$T_{c_{DL}} = -\frac{1+3\times.286}{8\times.286} \times 2630 \times 28'$$

$$T_{c_{DL}} = -59{,}800\#$$

$M_{c_{DL}}$ assumed = 0

Live Load for Maximum Positive Moment @ Crown

$$T_{cLL} = -\frac{57.6 + (189 - 8u_s)r - 220r^2}{1000r} \times w\ell$$

$$T_{cLL} = -\frac{57.6 + (189 - 8 \cdot 2.1).286 - 220(.286)^2}{1000 \times .286} \times 8400$$

$$T_{cLL} = -\frac{57.6 + 49.25 - 18}{286} \times 8400$$

$$T_{cLL} = -2610\#$$

$$M_{cLL} = \frac{72 + 105r + 220r^2 - (17 + 10r)u_s + 1.5u_s^2}{10,000} \times w\ell^2$$

$$M_{cLL} = \frac{72 + 105 \cdot .286 + 220(.286)^2 - (17 + 10 \cdot .286)2.1 + 1.5(2.1)^2}{10,000} 235,200$$

$$M_{cLL} = \frac{72 + 30.03 + 18 - 41.71 + 6.62}{10000} \times 235,200$$

$$M_{cLL} = 2000'\#$$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 6 OF 13
CALC. BY RJJ DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch 7.77

REFERENCE:

Live Load For Max. Negative Moment @ Crown

$$T_{cL} = -\frac{57.8+2u_s+(10+30u_s)r-(380+30u_s)r^2}{1000r}\,wl$$

$$T_{cL} = -\frac{57.8+2\times2.1+(10+30\cdot2.1).286-(380+30\cdot2.1)(.286)^2}{1000(.286)}\times 840$$

$$T_{cL} = -\frac{57.8+4.2+20.88-36.24}{.286}\times 8400$$

$$T_{cL} = -1370\#$$

Due to Temperature change @ Crown

$$T_{cT} = \left[19.4u_s-7.5+(17u_s-31)r-140(u_s-1)r^2\right]\frac{wtEI_o}{h^2}$$

$$T_{cT} = \left[19.4\cdot2.1-7.5+(17\cdot2.1-31)(.286)-140(2.1-1)(286)^2\right]\frac{518\text{k}\cdot\text{in}^2}{(8)^2}$$

$$= [40.74-7.5+1.34-12.6]\,769.5$$

$$T_{cT} = +16910\#$$

$$M_{cT} = (38.5-12.8u_s+1.6u_s^2)\frac{hT_{cT}}{100}$$

$$M_{cT} = (38.5-12.8\cdot2.1+1.6(2.1)^2)\frac{8\cdot16910}{100}$$

$$M_{cT} = (38.5-26.88+7.06)\,1352.8$$

$$M_{cT} = +25270'\#$$

SECTION AT SPRINGING:

Dead Load

$$V_S = -\frac{2+15r}{4} w_c \ell$$

$$V_S = -\frac{2+15(.286)}{4} \times 2630 \times 28$$

$$V_S = -115800\ \#$$

$$T_{S_{DL}} = -\sqrt{T_{C_{DL}}^2 + V_S^2}$$

$$T_{S_{DL}} = -\sqrt{(59{,}800)^2 + (115800)^2}$$

$$T_{S_{DL}} = -130330\ \#$$

Live Load For Maximum Negative Moment

$$T_{S_{LL}} = -\frac{27.6 + (125+6U_S)r + 320r^2}{1000r} \times w\ell$$

$$T_{S_{LL}} = -\frac{27.6 + (125+6(2.1)).286 + 320(.286)^2}{1000 \cdot .286} \times 8400$$

$$T_{S_{LL}} = -\frac{27.6 + 39.35 + 26.17}{286} \times 8400$$

$$T_{S_{LL}} = -2735$$

$$T_{C_{LL}} = -\left[\tfrac{1}{2} T_{m_2} - \frac{0.0026(U_S-2)^2}{r}\right] w\ell$$

where $T_{m_2} = \frac{\text{Thrust at crown for max. neg. moment @ crown}}{w\ell}$

$$= \frac{1370}{8400} = .163$$

$$T_{c_{LL}} = -\left[\tfrac{1}{2} \cdot .163 - \frac{.0026(2.1-2)^2}{.286}\right] 8400$$

$$T_{c_{LL}} = -(.082 - .011)\, 8400$$

$$T_{c_{LL}} = -600\#$$

$$M_{s_{LL}} = -\frac{283 \cdot 480r - 9(4.22 - 2.8r - U_s)^2}{10000} \times w2^2$$

$$M_{s_{LL}} = -\frac{283 - 480(.286) - 9(4.22 - 2.8(.286) - 2.1)^2}{10,000} \times 235,200'\#$$

$$M_{s_{LL}} = -\frac{283 - 137.28 - 15.66}{10,000} \times 235,200'\#$$

$$M_{s_{LL}} = -3060'\#$$

Temperature

$$T_{s_t} = (1.13 - 2.55r)\, T_c$$

$$= (1.13 - 2.55(.286))\, 16910$$

$$T_{s_t} = +6780$$

$$M_{s_t} = M_{c_t} + h T_{c_t}$$

$$= 25270 + (-8)(16910)$$

$$M_{s_t} = -110,010'\#$$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 9 OF 13
CALC. BY RJJ DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch 7.77

REFERENCE:

Average Stresses

Dead Load

$$fa_{DL} = -\left[1.03 + 2.5(r+0.05)^2 - \frac{(20r+8)U_s - (U_s-1)^2}{100}\right] fac_{DL}$$

Where fac = direct stress @ crown section (psf)

$$fa_{DL} = -\left[1.03 + 2.5(.286+0.05)^2 - \frac{(20(.286)+8)2.1 - (2.1-1)^2}{100}\right] \frac{59800}{2.25}$$

$$fa_{DL} = -(1.03 + .28 - \frac{28.81 - 1.21}{100})\, 26578$$

$$fa_{DL} = -27480\ \#$$

Live Load Producing Maximum Positive Moment at Crown

$$fa_{LL_C} = -\left[.92 + 2.6r^3 - 0.04U_s + \frac{(6.7+33r)(4-U_s)^2}{1000}\right] fac_{LL}$$

$$fa_{LL_C} = -\left[.92 + 2.6(.286)^3 - 0.04(2.1) + \frac{(6.7+33(.286))(4-2.1)^2}{1000}\right] \frac{2610}{2.25}$$

$$fa_{LL_C} = -\left[.92 + .061 - .084 + \frac{(16.14)(3.61)}{1000}\right] 1160$$

$$fa_{LL_C} = -1110\ \#$$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 10 OF 13
CALC. BY RJJ DATE 1-19-93
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch 7.77

REFERENCE:

For Live Load Producing Maximum Negative Moment
At Springing

$$fa_{LL_S} = -\left[.95 + 1.7r^2 - 0.05 u_s + \frac{(4+48r)(4-u_s)^2}{1000}\right] fac_{LL}$$

$$fa_{LL_S} = -\left[.95 + 1.7(.286)^2 - 0.05(2.1) + \frac{(4+48(.286))(4-2.1)^2}{1000}\right] \frac{600}{2.25}$$

$$fa_{LL_S} = -\left[.95 + .14 - .11 + \frac{(17.73)(3.61)}{1000}\right] 267$$

$$fa_{LL_S} = -280\ \#$$

For Temperature Stress

$$fa_t = [1.075 - 0.8r - (0.081 - 0.11r) u_s]\, fac_t$$

$$fa_t = [1.075 - 0.8(.286) - (0.081 - 0.11(.286))2.1] \frac{16910}{2.25}$$

$$fa_t = [1.075 - .23 - .10]\, 7516$$

$$fa_t = +5600\ \#$$

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 11 OF 13
CALC. BY RJL DATE 1-19-92
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch

REFERENCE:

The following summary contains the thrusts and moments due to arch shortening caused by the stresses from temperature change.

The calculation is a repetitive process based on the following. (Design of Concrete Structures)

$$\frac{\Sigma f_{ac}}{\omega t E} \times T_t = T_{AS}$$

$$\frac{\Sigma f_a}{\omega t E} \times M_t = M_{AS}$$

$$\frac{\Sigma f_a}{\omega t E} \times f_t = f_{as}$$

Σf_a is then recalculated and the ratio applied again until the ratio remains constant.

The actual calculations, being repetitive, were done on a PC.

Summary for Temperature Stresses at Crown

Thrust	Moment	Average Stress
+16910#	+25270'#	+5600

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 12 OF 13
CALC. BY RJJ DATE 1-9-92
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch

REFERENCE:

Summary For Maximum Positive Moment At Crown

	Thrust	Moment	Average Stress
Dead Load	-59,800	0	-27,480
Live Load	-2610	+2000	-1,110
Arch Shortening	+8420	+12580	+2,790
Total	-53990	+14580	-25,800

Summary For Max. Negative Moment At Springing

	Thrust	Moment	Average Stress
Dead Load	-130 330	0	-27480
Live Load	-2740	-3060	-280
Arch Shortening	+3280	-53170	+2710
	-129,790	-56230	-25050

.0136
34440
98200

Summary For Temperature Stresses At Springing

Thrust	Moment	Average Stress
+6780	-110,010	+560

BESSEMER AND LAKE ERIE RAILROAD COMPANY
UNION RAILROAD COMPANY
Office of Chief Engineer - Monroeville, Pa.

SHEET 13 OF 13
CALC. BY RJJ DATE 1-2093
CK. BY _____ DATE _____

PROJECT: Br. 12 Analyze Arch

REFERENCE:

UNIT STRESSES

SECTION		M	N	a	A	I	f_c*
CROWN	DL+LL+AS	+14580	-53990	2.25	2.25	.95	-287psi -47psi
SPRINGING	DL+LL+AS	-56230	-129790	4.73	4.73	8.84	-295psi -86psi

* $f_c = \frac{N}{A} \pm \frac{Ma}{2I}$ (Design of Concrete Structures)

Crown: $f_c = \frac{-53990^{\#}}{2.25 ft^2 \times 144 in^2/ft^2} \pm \frac{14580^{ft\#} \times 2.25^{ft}}{2 \times .95 ft^4 \times \frac{144 in^2}{ft^2}}$

$f_c = -166.6 \pm 119.9$

$f_c = -287psi, -47psi$

Springing: $f_c = \frac{-129790}{4.73 \times 144} \pm \frac{(-56230) \times 4.73}{2 \times 8.84 \times 144}$

$f_c = -190.6 \pm (104.5)$

$f_c = -295psi, -86psi$

From cylinder tests done by PTL,
the least $f'c = 2890$
assuming f_c allow. $= .4 f'c$,
f_c allow. $= .4 \times 2890 = 1156 psi$

$\frac{287}{295} < 1156$, Meets requirements.

EXHIBIT C

REPUBLIC ARCH 7.77 - BRIDGE 12

CONCRETE REPAIRS

RE: PUC ORDER C-913419

The following is an estimate for recommended cosmetic repairs to the arch:

	MATERIAL	O/S CONTR.& EQUIPMENT	LABOR
Close road for three (3) weeks		$ 5,260	
Install french drain over west spandrel wall	$ 100	600	$ 3,500
Repair spalls on southwest fact, southwest end of barrel and ten feet in from southeast end of barrel.	1,200	1,700	12,160
Scale and seal construction joint located 20 feet from west end and two (2) spalls 30 feet in from west end of south side of barrel.	200	75	1,665
T O T A L S	$ 1,500	$ 7,635	$ 17,325

NOTE: Labor rate of $275/day for total of 63 mandays.

DEK/jmh

January 22, 1993

CERTIFICATE OF SERVICE

I hereby certify that on the 3rd day of February, 1997, I am serving by first class, United States mail, postage prepaid, a copy of the foregoing document upon the parties of record listed below:

Representative Dan Anderson
4767 Route 8
Allison Park, PA 15101

W. D. Pickering, P.E. & Trent Hargrove
John L. Heaton, Chief Counsel
PENNDOT
509 Transportation & Safety Building
Harrisburg, PA 17120

Chairman
Allegheny County Commissioners
119 Courthouse
Pittsburgh, PA 15219

Mr. Mitchell T. Kovel, Secretary
Indiana Township
P. O. Box 788
Indianola, PA 15051

Bell Telephone Co. of PA
Legal Department - 16th Floor
One Parkway
Philadelphia, PA 19102

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Peoples Natural Gas Co.
625 Liberty Avenue
Pittsburgh, PA 15222-3197

Pennsylvania American Water Co.
Legal Department
800 W. Hersheypark Drive
Hershey, PA 17033

Mr. Thomas L. Snyder
Mr. Timothy S. Coon
Indiana Township
600 Grant Street - 42nd Floor
Pittsburgh, PA 15219

Gina M. D'Alfonso
Assistant Counsel
PENNDOT
1209 State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222

Colette Ferris-Shotton
Senior Attorney and Assistant Secretary
Bessemer and Lake Erie Railroad Company

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
1103 PITTSBURGH STATE OFFICE BUILDING
300 LIBERTY AVENUE
PITTSBURGH, PENNSYLVANIA 15222-1210

JLS

IN REPLY PLEASE REFER TO OUR FILE
C-00913419
0139

March 20, 1997

Colette Ferris-Shotton, Esquire
Senior Attorney & Assistant Secretary
Bessemer and Lake Erie Railroad Company
135 Jamison Lane
P.O. Box 68
Monroeville, PA 15146

Dear Ms. Shotton:

Re: Representative Daniel L. Anderson v. Bessemer & Lake Erie Railroad Company
Docket No. C-00913419

I have today received a copy of the letter you wrote to the court reporter for the hearing conducted in the above-captioned matter on January 29, 1997.

Kindly be advised that, pursuant to 52 Pa. Code §5.253 of the Commission's Rules of Administrative Practice and Procedure, a request for the correction of a transcript must be made in the form of a petition directed to me, as the presiding officer. Copies of your petition should be served upon all other parties attending the hearing. After you have complied with this regulation, I shall then take this matter under advisement.

I thank you for your time and attention to this matter.

Very truly yours,

JOHN H. CORBETT
Administrative Law Judge

JHC:kmc

cc: Parties of Record
File Room

S-2 (4-95)

ORIGINAL

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
Office of Chief Counsel
Forum Place
555 Walnut Street - 9th Floor
Harrisburg, Pennsylvania 17101-1900
Telephone No. (717) 787-3128
Fax No. (717) 772-2741

JLS

March 24, 1997

RECEIVED
97 MAR 24 PM 2:32
P.U.C.
PROTHONOTARY'S OFFICE

Prothonotary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Complaint Docket No. C-00913419

Dear Prothonotary:

Enclosed for filing please find the original and nine (9) copies of the Main Brief of the Department of Transportation to be filed in the above-captioned matter.

I hereby certify that the parties indicated on the Certificate of Service have been served with two copies of said Brief.

Very truly yours,

Gina M. D'Alfonso

Gina M. D'Alfonso
Assistant Counsel-in-Charge

220/GMD:sls

cc: William D. Pickering, P.E.
District 11-0 (Attn: John Fail)
Parties of Record

ORIGINAL

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

In Re: Representative Daniel L. Anderson vs. Bessemer and Lake Erie Railroad Company. : Docket No. C-00913419

DOCKETED
MAR 25 1997

DOCUMENT FOLDER

MAIN BRIEF OF THE
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

STATEMENT OF THE CASE

A hearing was held on this matter on January 29, 1997, before the Honorable John H. Corbett, Jr., Administrative Law Judge (ALJ). At the hearing, the Department of Transportation (Department), Bessemer and Lake Erie Railroad Company (Railroad) and the Bureau of Transportation and Safety offered testimony.

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PA P.U.C.
SECRETARY'S OFFICE

At the conclusion of the hearing, the ALJ requested briefs to summarize positions in lieu of closing statements. This brief is in accordance with that request of the ALJ.

ARGUMENT

The Public Utility Commission is not limited to any fixed rule when making a determination as to the manner in which a rail/highway crossing may be altered but must render an order which is just and reasonable. Municipality of Monroeville v.

Pennsylvania Public Utility Commission, 600 A.2d 655 (Pa. Cmwlth. Ct. 1991). Based upon the above standard, an order directing the Railroad to inspect the structure on a regular basis and through routine maintenance remove spalls and loose concrete and to replace the headwall because of the unknown future of the headwall.

It is the opinion of the Department that the spalling of joints is a nuisance item where small stones may fall and cause damage to vehicles below. If the structure is inspected and maintained on a regular basis, including the removal of any loose concrete, the spalling would be addressed. Maintenance to the structure should be on an annual basis until such time that an inspection may show loose concrete. At that time, an inspection should occur every six months (N.T. 122).

Movement of the headwall was first detected in 1990. It is believed that the movement can be attributed to the freeze-thaw cycles. There is sufficient reason to believe that the headwall is not attached to the structure by any means of structural support (N.T. 127). Any future shifting of the headwall could be significant and could interfere with the safe movement of the travelling public

CONCLUSION

Therefore, it is the position of the Commonwealth of Pennsylvania, Department of Transportation, that Bessemer and Lake Erie Railroad Company be responsible for the inspection and maintenance of the subject structure. The items of maintenance to be included would be regular removal of any loose or spalling concrete as well as the replacement of the headwall. The headwall has moved over the past six years and it is the strong belief of the Department the headwall is not attached to any form of structural support. These maintenance items are necessary and should be performed at the sole cost and expense of Bessemer and Lake Erie Railroad Company.

Respectfully submitted,

Gina M. D'Alfonso

Gina M. D'Alfonso
Assistant Counsel in Charge
Commonwealth of Pennsylvania
Department of Transportation
Office of Chief Counsel - 9th Floor
Forum Place, 555 Walnut Street
Harrisburg, PA 17101-1900
Telephcne No. (717) 787-3128

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the Department of Transportation's Main Brief was served upon the parties listed below by first class mail, postage prepaid this 24th day of March, 1997.

Honorable John H. Corbett, Jr.
Administrative Law Judge
1103 Pittsburgh State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222-1210

Robert N. Gentile
General Counsel and Secretary Transtar
135 Jamison Lane
P.O. ox 68
Monroeville, PA 15146

David Salapa, Esquire
PA PUC Bureau of Transportation & Safety
Legal Division
P.O. Box 3265
Harrisburg, PA 17105-3265

Gina M. D'Alfonso
Assistant Counsel in Charge
Commonwealth of Pennsylvania
Department of Transportation
Office of Chief Counsel - 9th Floor
Forum Place, 555 Walnut Street
Harrisburg, PA 17101-1900
Telephone No. (717) 787-3128

DATED: March 24, 1997

ORIGINAL

BESSEMER AND LAKE ERIE RAILROAD COMPANY

135 JAMISON LANE • P. O. BOX 68 • MONROEVILLE, PENNSYLVANIA 15146

0002 Office of
Vice President - Law,
General Counsel and
Secretary

97 APR -7 AM 10:31

RECEIVED
PROTHONOTARY'S OFFICE

April 4, 1997

Pennsylvania Public Utility Commission
New Filing Section
Room B-20, North Office Building
Harrisburg, PA 17102

Re: Anderson v. Bessemer and Lake Erie Railroad Company
No. C-913419 - Reply Brief

Dear Sir/Madam:

Please accept and file the enclosed Reply Brief on behalf of Bessemer and Lake Erie Railroad Company. An original and nine (9) copies of the Reply Brief have been enclosed, along with a Certificate of Service evidencing that all Parties of Record have also been served. Please contact me should you have any questions.

Very truly yours,

Colette Ferris-Shotton
Senior Attorney and
Assistant Secretary

CFS:nt
Enclosures
cc: The Honorable John H. Corbett, Jr.
Parties of Record

4°

ORIGINAL

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

000233

97 APR -7 AM 10:31

RECEIVED
SECRETARY'S OFFICE

IN RE:

REPRESENTATIVE DANIEL L. ANDERSON

Petitioner,

v.

BESSEMER AND LAKE ERIE
RAILROAD COMPANY

Respondent.

No. C-918419

Alleging requests necessary repairs
be done to Rural Ridge Tunnel on
Russelton Road, Indiana Township

REPLY BRIEF FILED BY
BESSEMER AND LAKE ERIE RAILROAD COMPANY

DOCKETED

Colette Ferris-Shotton
PA I.D. No. 58325
135 Jamison Lane
Monroeville, PA 15146
(412) 829-6892

Attorney for Bessemer and
Lake Erie Railroad Company

April 4, 1997

TABLE OF CONTENTS

In response to the Main Briefs filed on behalf of the Commonwealth of Pennsylvania, Department of Transportation ("PA DOT") and the Commonwealth of Pennsylvania, Pennsylvania Public Utility Commission (the "PUC" or "Commission"), the Bessemer and Lake Erie Railroad Company ("B&LE") hereby submits the following Reply Brief.

PA DOT

The B&LE takes exception to page 2 of the PA DOT Brief, wherein PA DOT speculates as to the cause of the slight movement of the spandrel wall: "(i)t is believed that the movement can be attributed to the freeze-thaw cycles." In fact, at the January 29, 1997 hearing, Martin L. Neaman, Inspector, Commonwealth of Pennsylvania, prefaced his unsubstantiated opinion regarding the origin of the slight movement, and the potential of a future movement (of the spandrel wall) by the statement "(w)e don't know..." (TR 124)[1]. Mr. Neaman continued by stating "(w)e assume a freeze-thaw cycle that it moves approximately two inches, two and a half, two inches. We don't know under what conditions that might occur again, whether or not another two inch movement would cause it to collapse" (TR 124). The B&LE respectfully requests the Commission to consider the fact that Mr. Neaman offered this opinion based upon mere speculation as no testing has been performed to determine the source of this slight movement which occurred some time within the 87 years the spandrel wall has been in existence.

Also on page 2 of its Brief, PA DOT makes the conjecture that "any future shifting of the headwall could be significant...." Once again, PA DOT offers no support for its position. In fact, given the thickness and weight of this spandrel wall, logic dictates that it would take a large

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[1]TR refers to page of original transcript.

movement of several inches to cause this 3 foot thick wall to become unstable. A one time movement of one and a half inches to two inches (TR 127) in 80 years is not significant.

Furthermore, the B&LE asserts that PA DOT erred in its Conclusion when it stated that "...the headwall has moved over the past six years...." Brief, page 3. It is undisputed that no movement of the spandrel wall has occurred since the B&LE has commenced monitoring it seven years ago (TR 107, 110, 111, 114). Moreover, Mr. Neaman admitted that PA DOT is not monitoring the movement of the spandrel wall (TR 127, 129). In fact, Mr. Neaman agreed with B&LE's expert witness, Richard J. Janus, that no movement of the spandrel has occurred since 1991 (TR 127, 129).

Finally, B&LE objects to PA DOT's recommendation that the sprandrel wall is in need of "maintenance" and that the B&LE should perform such maintenance, at its sole cost and expense. This recommendation simply lacks merit in that PA DOT has offered no evidence which supports its recommendation.

PUC or Commission

The B&LE takes exception to the Commission's reference on pages 7 & 8 of its Brief, particularly: "(i)f the wall moves further, it could collapse and fall off the arch. (N.T. 124)." See the B&LE's reply to the PA DOT Brief on pages 1 & 2 herein.

On page 8 of its Brief, the PUC referenced an estimate offered by Mr. Neaman regarding the cost to replace the spandrel wall. The B&LE wishes to alert the Commission to the fact that at the January 29, 1997 hearing, Mr. Neaman stated that he never prepared an estimate, and offered an off the top of the head opinion regarding the cost to replace the spandrel wall (TR

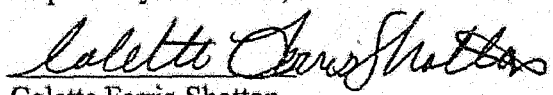
130). No party, including the B&LE, has prepared a recent, comprehensive cost estimate for either replacement of, or repair to, the spandrel wall. However, based upon its past experience with such structures, the B&LE believes that Mr. Neaman's guess of $5,000.00 - $10,000.00 is excessively low.

Conclusion

- This 3 foot thick spandrel wall has been in existence since 1910.
- In its 87 years of existence, the spandrel wall sustained an insignificant movement.
- The B&LE has been monitoring the spandrel wall for the past seven years and has detected no movement.
- Based upon the above-referenced facts, the B&LE concludes that the spandrel wall is stable. Whatever stresses which apparently caused the slight movement more than seven years ago must have been relieved as no further shift has occurred.

In light of the foregoing, the B&LE respectfully requests the Commission agree that: (i) the B&LE continue its annual inspections of the Republic Arch; (ii) continue to maintain (i.e. minor scaling and removal of brush) the Republic Arch at its own expense, with the reservation of the right to petition the Commission for allocation of costs in the future; and, (iii) B&LE will continue to monitor the spandrel wall annually and submit an inspection report to the Commission and/or another designated party--in the event movement of the spandrel wall is detected, B&LE reserves its right to petition the Commission for allocation of costs relative to repair, alteration or replacement of the spandrel wall.

Respectfully submitted,



Colette Ferris-Shotton
Senior Attorney and
Assistant Secretary
135 Jamison Lane
Monroeville, PA 15146
(412) 829-6892
Attorney for Bessemer and Lake Erie Railroad Company

Dated: April 4, 1997

CERTIFICATE OF SERVICE

I, Colette Ferris-Shotton, do hereby certify that on the 4th day of April, 1997, I have served by first class mail, postage prepaid, a copy of the foregoing Reply Brief of the Bessemer and Lake Erie Railroad Company on the presiding Administrative Law Judge, John H. Corbett, Jr., and two copies of said Reply Brief on the following parties of record:

Representative Dan Anderson
4767 Route 8
Allison Park, PA 15101

W. D. Pickering, P.E. & Trent Hargrove
John L. Heaton, Chief Counsel
PENNDOT
509 Transportation & Safety Building
Harrisburg, PA 17120

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