Dylan Mark Rowley

Thesis submitted to the faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Master of Science

In

Mining and Minerals Engineering

Gerald H. Luttrell, Chair
Gregory T. Adel
Jaisen N. Kohmuench

June 6, 2014
Blacksburg, VA
Dear Dylan Rowley,

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From: Dylan Rowley [mailto:drowley0160@gmail.com]
Sent: 14 July 2014 15:02
To: Academic UK Non Rightslink
Subject: gmpr20: The Effect of Bubble Size on Fine Particle Flotation
AIME Permission for Picture Use in Your Thesis

Michele Lawrie-Munro <lawriemunro@aimehq.org>
Cc: drowley0160@gmail.com <drowley0160@gmail.com>

Fri, Jul 11, 2014 at 4:22 AM

Many thanks for your call today, Dylan... the above. I have looked in our digital library for the reference below that you gave me and cannot find it among the 60 references of articles by Gaudin. I wanted to ensure I took down all of the details properly? Also, it would be helpful if you could provide a figure or page number in your reply as well. Let me know if anything isn’t correct.

“Effect of particle size on flotation” by Gaudin, Volume 414 from 1931.

Michele

---

L. Michele Lawrie-Munro, CAE
Executive Director
American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc. (AIME)
12555 East Adam Aircraft Circle
Englewood, CO 80112
Email: lawriemunro@aimehq.org
Phone: 1-303-325-8186
Fax: 1-303-325-8186
Website: www.aimehq.org

---

Dylan Rowley <drowley0160@gmail.com>
Cc: Michele Lawrie-Munro <lawriemunro@aimehq.org>

Fri, Jul 11, 2014 at 7:54 AM

Good Morning Michele,

Here is my citation that I have for that publication. Also is the figure I am using. I hope it helps.


---

Dylan
[Quote text hidden]

---

Dylan Rowley
Virginia Tech
Mining and Minerals Engineering

---

Michele Lawrie-Munro <lawriemunro@aimehq.org>
Cc: kara@smereit.org <kara@smereit.org>, drowley0160@gmail.com <drowley0160@gmail.com>

Fri, Jul 11, 2014 at 8:12 AM

Thanks for the figure, etc. below, Dylan. I did have the title slightly wrong, but, unfortunately, I am still not finding the paper in either AIME’s or SME’s digital library. So, I am copying the Managing Editor of SME’s publications group, Steve Knoll, to see if they can hunt it down there at the building and grant you the permission you need (AIME transferred all copyrights to SME when it became a separate entity in 1985). If they can’t find it, I’m happy to provide permission so that you can move forward.

All the best with your studies,

Michele
L. Michele Lawrie-Munro, CAE
Executive Director
American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc. (AIME)
12999 East Adam Aircraft Circle
Englewood, CO 80112
Email: lawriemunro@aimehq.org
Phone: 1-303-325-5185
Fax: 1-303-702-0049
Website: www.aimehq.org

From: Dylan Rowley [mailto:drowley0160@gmail.com]
Sent: Friday, July 11, 2014 5:55 AM
To: Michele Lawrie-Munro
Subject: Re: AIME Permission for Picture Use in Your Thesis

[Quoted text hidden]

Dylan Rowley <drowley0160@gmail.com>
To: Michele Lawrie-Munro <lawriemunro@aimehq.org>

Okay, sounds good. Thank you Michele. Just let me know what happens.

Dylan
[Quoted text hidden]

Steve Kral <skral@smenet.org>
To: Michele Lawrie-Munro <lawriemunro@aimehq.org>, "drowley0160@gmail.com" <drowley0160@gmail.com>

Fri, Jul 11, 2014 at 8:15 AM

Steve

On 7/11/14 6:12 AM, “Michele lawrie-Munro” <lawriemunro@aimehq.org> wrote:

Thanks for the figure, etc. below, Dylan. I did not have the title slightly wrong, but, unfortunately, I am still not finding the paper in either AIME’s or SME’s digital library. So, I am copying the Managing Editor of SME’s publications group, Steve Kral, to see if they can find it down there in the building and grant you the permission you need (AIME transferred all copyrights to SME when it became a separate entity in 1985). If they can’t find it, I’m happy to provide permission so that you can move forward.

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Website: www.aimehq.org

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Sent: Friday, July 11, 2014 5:55 AM
To: Michele Lawrie-Munro
Subject: Re: AIME Permission for Picture Use in Your Thesis

Fri, Jul 11, 2014 at 9:32 AM

Steve

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Good Morning Michele,

Here is my citation that I have for that publication. Also is the figure I am using. I hope it helps.


![Graph showing particle size on flotation](image)

Dylan

On Fri, Jul 11, 2014 at 4:22 AM, Michele Lavinac-Murro <m.murro@aimedq.org> wrote:

Many thanks for your call today, Eileen, see the above. I have looked in our digital library for the reference below that you gave me and cannot find it among the 60 references of articles by Gaudin. I wanted to ensure I took down all the details properly. Also, if would be helpful if you could provide a figure or page number in your reply as well. Let me know if anything isn't correct.

"Effect of particle size on flotation" by Gaudin, Volume 414 from 1931.

Michele

L. Michele Lavinac-Murro, CAE
Executive Director
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Email: lavinac.murro@aimedq.org
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Fax: 1-888-702-0049 <tel:1-888-702-0049>
Website: www.aimedq.org <http://www.aimedq.org/>

Dylan Rowley <droley090@gmail.com>
To: Steve Hazi <sz@smu.net.org>
Fri, Jul 11, 2014 at 11:49 AM

Thank you Steve. I just found two additional sources he used that are tables. The citations are below along with the table. Can you provide permission for me to use these in my thesis as well?


Table 1. Ash Removal Comparison Between Laboratory and Industrial Flowsheets of Coal Flotation.

<table>
<thead>
<tr>
<th>Mesh Size</th>
<th>WOC</th>
<th>Single Stage Flotation</th>
<th>Air Sparged Hydrocyclone Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Illinois 6</td>
<td>70%</td>
</tr>
<tr>
<td>200/270</td>
<td>0-45</td>
<td>40-45</td>
<td>59.6</td>
</tr>
<tr>
<td>200/325</td>
<td>15-18</td>
<td>40-45</td>
<td>44.62</td>
</tr>
<tr>
<td>&lt;250</td>
<td>0-44</td>
<td>30-05</td>
<td>51.88</td>
</tr>
</tbody>
</table>

| Operating Parameters |  
|----------------------|------------------|
| **Parameter**       | **Value** |
| Promoter            | 0.05 g/kg     |
| Collector           | 0.08 g/kg     |
| Frother             | 0.1 g/kg      |
| Air Flow Rate       | 100 cfm       |
| Solids Feed Rate    | 1 g/hr        |
| Percent Solids      | 16 %          |

<table>
<thead>
<tr>
<th>Comparison of Flotation Methods on Gold Ore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Sparged Hydrocyclone</td>
</tr>
<tr>
<td>Stream</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Tail</td>
</tr>
<tr>
<td>Feed</td>
</tr>
</tbody>
</table>

Thank you,

Dylan

[Boxed text hidden]

Dylan Rowley
Virginia Tech
Mining and Minerals Engineering

Steve Kral <skral@smnet.or>  Fri, Jul 11, 2014 at 12:00 PM

To: Dylan Rowley <drowleyC16@gmail.com>

Yes, you have our permission.

On 7/11/14 9:49 AM, "Dylan Rowley" <drowleyC16@gmail.com> wrote:

Thank you Steve, I just found two additional sources I've used that are tables. The citations are below along with the table. Can you provide permission for me to use these in my thesis as well?


*Table 2.2. Ash Removal Comparisons between Separation Technologies (Miller & Van Camp, 1982).*

<table>
<thead>
<tr>
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<th>WOC</th>
<th>Single Stage Flotation</th>
<th>Air Sparged Hydrocyclone Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Illinois 6</td>
</tr>
<tr>
<td>28x100</td>
<td>60-65</td>
<td>50-60</td>
<td>77-86</td>
</tr>
<tr>
<td>100x200</td>
<td>40-45</td>
<td>40-45</td>
<td>59-68</td>
</tr>
<tr>
<td>200x325</td>
<td>15-18</td>
<td>40-45</td>
<td>44-62</td>
</tr>
<tr>
<td>&lt;325</td>
<td>0-5</td>
<td>50-55</td>
<td>57-67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASH Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Variables</td>
</tr>
<tr>
<td>Cyclone Diameter</td>
</tr>
<tr>
<td>Cyclone Length</td>
</tr>
<tr>
<td>Pore Size</td>
</tr>
<tr>
<td>Pedestal Diameter</td>
</tr>
<tr>
<td>Operating Parameters</td>
</tr>
<tr>
<td>Promoter</td>
</tr>
<tr>
<td>Collector</td>
</tr>
<tr>
<td>Frother</td>
</tr>
<tr>
<td>Air Flow Rate</td>
</tr>
<tr>
<td>Solids Feed Rate</td>
</tr>
<tr>
<td>Percent Solids</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparison of Flotation Methods on Gold Ore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Sparged Hydrocyclone</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>Stream</td>
</tr>
<tr>
<td>Concentrate</td>
</tr>
<tr>
<td>Tail</td>
</tr>
<tr>
<td>Feed</td>
</tr>
</tbody>
</table>

Thank you,

Dylan

On Fri, Jul 11, 2014 at 9:32 AM, Steve Kral <kral@smenet.org> wrote:

Dylan,

Our library is being recouped so I could not find the paper. However, you have our permission to use the figure with proper attribution to SME-AIME.

Steve

Steve Kral, Editor
Mining Engineering Magazine
Tunneling & Underground Construction Magazine
Society for Mining, Metallurgy and Exploration, Inc.
12999 E. Adam Aircraft Circle
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Fax 303-970-3845 <tel:303-970-3845>
E-mail kral@smenet.org <http://kral@smenet.org>
Web site www.smenet.org <http://www.smenet.org>

On 7/11/146:12 AM, "Michelle Lawrie-Munro" <lawrie.munro@aimh.org <mailto:lawrie.munro@aimh.org>> wrote:

Thanks for the figure, etc., Dylan. I did have the title slightly wrong, but unfortunately I am still not finding the paper in either AIME's or SME's digital library. So, I am copying the Managing Editor of SME's publications group, Steve Kral, to see if they can direct you to the building and grant you the permission you need (AIME transferred all copyrights to SME when it became a separate entity in 1985). If they can't find it, I'm happy to provide permission so that you can move forward.

All the best with your studies,

Michelle

L. Michelle Lawrie-Munro, CAE
Executive Director
American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc. (AIME)
12999 East Alam Aircraft Circle
Englewood, CO 80112
E-mail: lawrie.munro@aimh.org <mailto:lawrie.munro@aimh.org>
Phone: 1-303-325-5185 <tel:1-303-325-5185>

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Good Morning Michelle,

Here is my citation that I have for that publication. Also is the figure I am using. I hope it helps.


[Diagram of particle size in flotation]

Dylan

On Fri, Jul 11, 2014 at 4:22 AM, Michele Lawko-Murro <lawkmurro@aimehq.org> <http://lawkmurro@aimehq.org> wrote:

Mary thanks for your call today, Dillon re: the above. I have looked in our digital library for the reference below that you gave me and cannot find it among the 60 references of articles by Gaulin. I wanted to ensure I look down all of the details properly. Also, if would be helpful if you could provide a figure or page number in your reply as well. Let me know if anything isn’t correct.

"Effect of particle size in flotation" by Gaulin. Volume 414 from 1931.

Michelle

L. Michele Lawko-Murro, CAE
Executive Director
American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc. (AIME)
12599 East Adam Avenue Circle
Englewood, CO 80112
Email: lawkmurro@aimehq.org <http://lawkmurro@aimehq.org>
Website: www.aimehq.org <http://www.aimehq.org>

Dylan Rowley <drowley06c@gmail.com> 
To: Steve Hef <sh@smenet.org>  

Good Morning Steve,

I am sorry to bother you again about permissions. I have one more work I need approval for copyright permission. The citation and figure is listed below. Thank you.

Very Respectfully,

Dylan Rowley

---

On 7/14/14 8:05 AM, "Dylan Rowley" <drowleyC16C@gmail.com> wrote:

Good Morning Steve,

I am sorry to bother you again about permissions. I have one more work I need approve for copyright permission. The citation and figure is listed below. Thank you.


Very Respectfully,

Dylan Rowley
On Fri, Jul 11, 2014 at 12:00 PM, Steve Knaal <sknaal@smenet.org> wrote:

Yes, you have our permission.

On 7/11/14 9:49 AM, "Dylan Rowley" <drowley0360@gmail.com> <http://drowley0360@gmail.com> wrote:

Thank you Steve. I just found two additional sources I’ve used that are tables. The citations are below along with the tables. Can you provide permission from me to use these in my thesis as well?


*Table 2.2. Ash Removal Comparisons between Separation Technologies (Miller & Van Camp, 1982).*

<table>
<thead>
<tr>
<th>Mesh Size</th>
<th>WOC</th>
<th>Single Stage Flotation</th>
<th>Air Sparged Hydrocyclone Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Illinois 6</td>
</tr>
<tr>
<td>28x100</td>
<td>60-65</td>
<td>50-60</td>
<td>77.86</td>
</tr>
<tr>
<td>100x200</td>
<td>40-45</td>
<td>40-45</td>
<td>59.68</td>
</tr>
<tr>
<td>200x325</td>
<td>15-18</td>
<td>40-45</td>
<td>44.62</td>
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<td></td>
<td></td>
<td>Beaver Creek</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>42.5</td>
</tr>
</tbody>
</table>


**ASH Parameters**

<table>
<thead>
<tr>
<th>Design Variables</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclone Diameter</td>
<td>5 cm</td>
</tr>
<tr>
<td>Cyclone Length</td>
<td>52.5 cm</td>
</tr>
<tr>
<td>Pore Size</td>
<td>1 micron</td>
</tr>
<tr>
<td>Pedestal Diameter</td>
<td>4.25 cm</td>
</tr>
</tbody>
</table>

**Operating Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoter</td>
<td>0.05 g/kg</td>
</tr>
<tr>
<td>Collector</td>
<td>0.08 g/kg</td>
</tr>
<tr>
<td>Frother</td>
<td>0.1 g/kg</td>
</tr>
<tr>
<td>Air Flow Rate</td>
<td>100 slpm</td>
</tr>
<tr>
<td>Solids Feed Rate</td>
<td>1 tph</td>
</tr>
<tr>
<td>Percent Solids</td>
<td>16 %</td>
</tr>
</tbody>
</table>
### Comparison of Flotation Methods on Gold Ore

<table>
<thead>
<tr>
<th>Stream</th>
<th>Air Sparged Hydrocyclone</th>
<th>Conventional Batch Flotation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight %</td>
<td>Grade</td>
</tr>
<tr>
<td>Concentrate</td>
<td>0.39</td>
<td>2.17</td>
</tr>
<tr>
<td>Tail</td>
<td>99.61</td>
<td>0.002</td>
</tr>
<tr>
<td>Feed</td>
<td>100</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Thank you,

Dylan

On Fri, Jul 11, 2014 at 9:52 AM, Steve Krall <skrall@smenet.org> wrote:

Dylan,

Our library is being redone so I could not find the paper. However, you have our permission to use the figure with proper attribution to SME-AIME.

Steve

---

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On 7/11/14 6:12 AM, "Michael Lawrie Munro" <lawrie.munro@aimehq.org> wrote:

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Michael

Michael Lawrie Munro, CPE  
Executive Director  
American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc. (AIME)  
12999 East Adam Aircraft Circle  
Englewood, CO 80112  

From: Dylan Rovely <mailto:drovelly0160@gmail.com>  
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Subject: Req: SME Permission for Picture Use in Your Thesis

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<http://lawto munro@aimshq.org> wrote:

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Englewood, CO 80112
Email: lawto munro@aimshq.org <http://lawto munro@aimshq.org>
Dear Dylan Rowley,

Thank you for your correspondence requesting permission to reproduce the following material from our Journal in your printed thesis at Virginia Tech entitled “Investigation of Flash Flotation Technology Utilizing Centrifugal Forces and Novel Sparging Methods” and to be posted in your university’s repository.


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From: Dylan Rowley [mailto:drowley0160@gmail.com]
Sent: 11 July 2014 15:28
To: East, Deborah
Subject: Re: gcop19: Assessment of the Controlling Factors in Turbo Flotation by Statistical Analysis

I attend Virginia Tech and the title of my thesis is "Investigation of Flash Flotation Technology Utilizing
Centrifugal Forces and Novel Sparging Methods”. Do you need any other sort of proof that I attend? Please let me know. Thank you.

Dylan

On Fri, Jul 11, 2014 at 10:25 AM, East, Deborah <Deborah.East@tandf.co.uk> wrote:

Dear Dylan, Please can I ask you to confirm if this is for your thesis? If so can you please confirm your University that you attend and also confirm your Thesis title.

Thank you and kindest regards

Debbie East.

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Routledge, Taylor & Francis Group.
3 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN, UK.

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Sent: 11 July 2014 13:35
To: Academic UK Non Rightslink
Subject: gcop19: Assessment of the Controlling Factors in Turbo flotation by Statistical Analysis

Permissions Request
Contact name: Dylan Rowley
Street address: 1781 old buckhead rd
Town: Madison
Postcode/ZIP code: 30650
Country: United States
Contact telephone number: 7068181587
Contact email address: drowley0160@gmail.com
Article title: Assessment of the Controlling Factors in Turbo flotation by Statistical Analysis
Article DOI: 10.1080/07349340008945626
Author name: P. K. Ofori, B. A. Firth, T. Howes
Journal title: Coal Preparation
Volume number: 21
Issue number: 4
Year of publication: 2000
Page number(s): 355-382
Are you the sole author/editor of the new publication?: No
Are you requesting the full article?: No
If no, please supply extract and include number of word:
If no, please supply details of figure/table: I am requesting use of two figures. The first figure is a diagram of the Turbo flotation System. The second is a the Yield vs. Ash graph where Ofori compares the Turbo flotation results to traditional flotation techniques.
Name of publisher of new publication: Virginia Tech
Title of new publication: Investigation of Flash Flotation Technology Utilizing Centrifugal Forces and Novel Sparging Methods
Course pack: No
Number of Students:
Is print:
Electronic: Yes
E-reserve: No
Period of use:
Short loan library?: No
Thesis: Yes
To be reprinted in a new publication?: No
In print format:
In eBook format?:
ISBN:
Languages:
Distribution quantity:
Retail price:
Additional comments:
- Dylan Rowley
Virginia Tech
Mining and Minerals Engineering
Thank you for your interest in our company and the request for use of FLSmidth images for your thesis statement.

Because images, photos and illustrations are part of FLSmidth’s intellectual property and branded image, would you please first fill out the attached permission form and then scan and send back to my attention. If you do not have a scanner, you can take a clear photo on your mobile device and email it. If you are not sure of all the things to fill in, you can leave that to me. The main part is your name, title, company/educational institution and signature.

Once we have received the signed FLSmidth Copyright Use Permission Agreement, we can send better versions of the images your way for use in your upcoming papers and presentations.

Thank you and regards,

Andrew Cuthbert
Director - Global Marketing, Minerals

Direct +1 801 871 7105
andrew.cuthbert@flsmidth.com

______________________________

FLSmidth
FLSmidth USA Inc. · Salt Lake City Operations

7158 S. FLSmidth Drive · Midvale, UT 84047-5559 · USA
Tel +1 801 871 7000 · Fax +1 801 871 7001

www.flsmidth.com
Hi Andrew,

Thank you for the form. I just found another FL Smidth picture I used for the same purpose. It is a picture of a Krebs Hydrocyclone and it is cut in half to show what happens inside the hydrocyclone. I do not have a source for it as I found it through the internet but could not find it on your website. Would I need to fill out two separate forms or just complete one form and return it to you.

Thank you for your help.

Dylan

[Quoted text hidden]

--
Dylan Rowley
Virginia Tech
Mining and Minerals Engineering

One form is fine. Thanks,

Andrew Cuthbert
Director - Global Marketing, Minerals

Direct +1 801 871 7105 • Mobile +1 801 647 4772
andrew.cuthbert@flsmidth.com
From: Dylan Rowley [mailto:drowley0160@gmail.com]
Sent: Thursday, July 10, 2014 11:27 AM
To: Andrew Cuthbert
Subject: Re: FLSmidth Image Permission

[Quoted text hidden]

Dylan Rowley <drowley0160@gmail.com>  Thu, Jul 10, 2014 at 2:36 PM
To: Andrew Cuthbert <Andrew.Cuthbert@fsmidth.com>

Andrew,

Attached is the form filled out and signed. Let me know if I need to include or redo anything.

Thank you,

Dylan

On Thu, Jul 10, 2014 at 1:09 PM, Andrew Cuthbert <Andrew.Cuthbert@fsmidth.com> wrote:
[Quoted text hidden]

—
Dylan Rowley
Virginia Tech
Mining and Minerals Engineering

Rowley, Dylan Copyright Use.pdf
294K

Andrew Cuthbert <Andrew.Cuthbert@fsmidth.com>  Thu, Jul 10, 2014 at 2:38 PM
To: Dylan Rowley <drowley0160@gmail.com>

Perfect. Thanks. Good luck with your thesis.

Andrew Cuthbert
Director - Global Marketing, Minerals

Direct +1 801 871 7105
andrew.cuthbert@fsmidth.com
From: Dylan Rowley <drowley0160@gmail.com>
Sent: Thursday, July 10, 2014 12:36 PM
To: Andrew Cuthbert
Subject: Re: FLSmidth Image Permission

Andrew,

[Quoted text hidden]

[Dylan Rowley <drowley0160@gmail.com> Thu, Jul 10, 2014 at 2:51 PM]
To: Andrew Cuthbert <Andrew.Cuthbert@flsmidth.com>

Thank you Andrew! Greatly appreciate your help. When can I expect back the signed form?

Dylan
[Quoted text hidden]

[Andrew Cuthbert <Andrew.Cuthbert@flsmidth.com> Thu, Jul 10, 2014 at 4:12 PM]
To: Dylan Rowley <drowley0160@gmail.com>

Here you go,

Andrew Cuthbert
Director - Global Marketing, Minerals

Direct +1 801 871 7105
andrew.cuthbert@flsmidth.com
From: Dylan Rowley
Sent: Thursday, July 10, 2014 12:52 PM

[Quoted text hidden]

[Quoted text hidden]

FLSmidthCopyrightPermissionDRowley.pdf
139K
FLSmidth – Copyright Use Permission Agreement

This Copyright Use Permission Agreement ("Agreement") permits the Grantee to use the Materials for the Purpose. In consideration for the rights granted herein, the Grantee agrees to the following terms and conditions:

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8. The Materials are provided ‘as is’ with no explicit or implied warranties, including, but not limited to, correctness and fitness for purpose. In no event shall FLSmidth have any liability associated with Grantee’s use of the Materials.

9. This Agreement shall be governed by the laws of the state of Utah, not including its conflicts of law principles. Any disputes related to this agreement shall be decided by the courts of the state of Utah and Grantee agrees to submit to the jurisdiction thereof.

"Materials" shall mean: WEMCO Flotation Machine, Figure Krebs Hydrocyclone, Figure Krebs Hydrocyclone, Figure Krebs Hydrocyclone.
"Purpose" shall mean: Flotation & Hydrocyclone Separation explanations for Virginia Tech Thesis

IN WITNESS WHEREOF, the parties have executed this Agreement on (Date) 7/10/2014

FLSMIDTH USA INC.

Authorized Signature
Name ANDREW CUTHBERT
Title DIRECTOR - GLOBAL MARKETING

GRANTEE

Authorized Signature
Name Dylan Rowley
Title Graduate Research Assistant
Company Virginia Tech Mining and Minerals Dept.
Country United States
Dylan Rowley: Copyright Permission SME Handbook
7 messages

Dylan Rowley <drowley0160@gmail.com>  Thu, Jul 10, 2014 at 12:28 PM
To: olivier@smenet.org

Hi Jane,

We just spoke on the phone about the copyright for the SME Handbook. I used the images of a flotation cell in the 'Fundamental Principles of Froth Flotation' by Kawatra, S.K. The pages I have listed for the section are 1517-1531. Thank you for your help.

Very Respectfully,

- Dylan Rowley
Virginia Tech
Mining and Minerals Engineering

Jane Olivier <glacierpublishing@gmail.com>  Thu, Jul 10, 2014 at 2:31 PM
To: Dylan Rowley <drowley0160@gmail.com>

Hello Dylan,

Thank you for contacting SME about permission to repurpose the copyrighted figures from the SME Mining Engineering Handbook.

You are hereby authorized to do so providing you include a complete source line for each figure, citing the Handbook and including SME’s web address: smenet.org

Regards,
Jane Olivier
Manager of Book Publishing
SME

[Quoted text hidden]

Dylan Rowley <drowley0160@gmail.com>  Thu, Jul 10, 2014 at 2:41 PM
To: Jane Olivier <glacierpublishing@gmail.com>

Hi Jane,

Thank you very much! I came across to other figures I am using in my thesis that are part of SME publications. I am including the citations below with their associated figure. I am requesting copyright permission on those as well.


https://mail.google.com/mail/u/0?ui=2&ik=6c45b6e1f1&view=pt&search=all&lpid=147211b37beae70&simpl=147211b37beae70&simpl=14721c074f0f645&siml...

Let me know if I can use these images or if we have to go about it a different way.

Thank you very much

Dylan Rowley

[Quoted text hidden]

Jane Olivier <glacierpublishing@gmail.com> Thu, Jul 10, 2014 at 2:52 PM

To: Dylan Rowley <drowley0160@gmail.com>

On behalf of SME, I hereby authorize the reuse of the additional two figures. Again, please include a complete citation.

Best,
Jane

On Jul 10, 2014, at 12:41 PM, Dylan Rowley <drowley0160@gmail.com> wrote:

Hi Jane,

Thank you very much! I came across to other figures I am using in my thesis that are part of SME publications. I am including the citations below with their associated figure. I am requesting copyright permission on those as well.

Mining, Metallurgy, and Exploration.


Let me know if I can use these images or if we have to go about it a different way.

Thank you very much

Dylan Rowley

On Thu, Jul 10, 2014 at 2:31 PM, Jane Olivier <glacierpublishing@gmail.com> wrote:

Hello Dylan,

Thank you for contacting SME about permission to repurpose the copyrighted figures from the SME Mining Engineering Handbook.

You are hereby authorized to do so providing you include a complete source line for each figure, citing the Handbook and including SME's web address: smenet.org

Regards,
Jane Olivier
Manager of Book Publishing
SME

On Jul 10, 2014, at 10:28 AM, Dylan Rowley <drowley0160@gmail.com> wrote:

> Hi Jane,
> >
> > We just spoke on the phone about the copyright for the SME Handbook. I used the images of a flotation cell in the "Fundamental Principles of Froth Flotation" by Kawatra, S.K. The pages I have listed for the section are 1517-1531. Thank you for your help.
> >
> > Very Respectfully,
> >
> > –
> > Dylan Rowley
> > Virginia Tech
> > Mining and Minerals Engineering

Dylan Rowley
Virginia Tech
Mining and Minerals Engineering
Dylan Rowley <drowley0160@gmail.com>  
To: Jane Olivier <glacierpublishing@gmail.com>  
Thu, Jul 10, 2014 at 2:53 PM

Awesome! Thank you Jane. I greatly appreciate your help!

[Quoted text hidden]

Dylan Rowley <drowley0160@gmail.com>  
To: Jane Olivier <glacierpublishing@gmail.com>  
Thu, Jul 10, 2014 at 3:46 PM

I apologize Jane for overrunning you with emails about copyright permission. I should have collected them all at once. I do have two more figures. The citation and pictures are shown below.


[Diagram of a hydrocyclone]

I apologize again. Thank you.

Dylan
[Quoted text hidden]

Jane Olivier <glacierpublishing@gmail.com>  
To: Dylan Rowley <drowley0160@gmail.com>  
Thu, Jul 10, 2014 at 3:48 PM

These too are authorized.

I must tell you though that you have reached the limit on the number of figures we allow to be repurposed, especially at no cost.

Hopefully there are no more.

On Jul 10, 2014, at 1:46 PM, Dylan Rowley <drowley0160@gmail.com> wrote:

I apologize Jane for overrunning you with emails about copyright permission. I should have collected them all at once. I do have two more figures. The citation and pictures are shown below.

International Symposium (p. 9). Denver: SME.
Dylan Rowley: Cavitation Tube Figure Permission
2 messages

Dylan Rowley <drowley0160@gmail.com>  Thu, Jul 10, 2014 at 1:07 PM
To: jkohmuench@eriez.com

Good Afternoon Jaisen,

I am requesting your copyright permission to use a figure of the cavitation tube in my thesis. The picture is shown below. Thank you.

--

Dylan Rowley
Virginia Tech
Mining and Minerals Engineering

Kohmuench, Jaisen <jkohmuench@eriez.com>  Thu, Jul 10, 2014 at 1:14 PM
To: Dylan Rowley <drowley0160@gmail.com>

Granted.

-Jaisen

Jaisen Kohmuench

Deputy Managing Director
Eriez Flotation Division USA
2200 Asbury Road
Erie, PA 16506
Office: (814) 520-8428
Cell: (814) 746-5559
***PLEASE NOTE MY NEW OFFICE PHONE NUMBER***

From: Dylan Rowley [mailto:drowley0160@gmail.com]
Sent: Thursday, July 10, 2014 1:07 PM
To: Kohmuench, Jaisen
Subject: Dylan Rowley: Cavitation Tube Figure Permission

[Quoted text hidden]
Re: Dylan Rowley: Copyright Permission

2 messages

Aaron Noble <aaron.noble@mail.wvu.edu>
To: DYLAN <drowley0160@hotmail.com>

Dylan,

I have no problem with you using my graph in your thesis as long as it is properly cited. I am glad that it helps.

Take care,

Dr. Aaron Noble
Assistant Professor
Mining Engineering || West Virginia University
(304) 293-9959 || canoble@mail.wvu.edu
353A Mineral Resources Building

On Wed, Jul 9, 2014 at 2:33 PM, DYLAN <drowley0160@hotmail.com> wrote:

Good Afternoon Aaron,

In my final thesis, I used your graph showing the increase in cell volume size over the years. I am requesting your permission to officially use it when I submit my thesis. Thank you.

Very Respectfully,

Dylan Rowley

Dylan Rowley <drowley0160@gmail.com>
To: Aaron Noble <aaron.noble@mail.wvu.edu>

Thank you Aaron!

[Quoted text hidden]

—

Dylan Rowley
Virginia Tech
Mining and Minerals Engineering
Dylan Rowley: Permission to Use CAD Drawing

2 messages

Dylan Rowley <drowley0160@gmail.com>  
Mon, Jul 7, 2014 at 3:12 PM

To: "Yan, Eric" <eyan@eriez.com>

Good Afternoon Eric,

I hope everything is going well. I am in the final stages of finishing my thesis and I am using the drawing of the first flotation cyclone you designed. I am requesting your permission to use said drawing in my thesis. The picture is included for your reference. Let me know if I can use it. Thank you.

![Cyclone Drawing]

Very Respectfully,

Dylan Rowley

---

Yan, Eric <eyan@eriez.com>  
Mon, Jul 7, 2014 at 3:37 PM

To: Dylan Rowley <drowley0160@gmail.com>

Dylan,

Please do and let me know if you need any other documentation. I wish you the BEST luck!!

-eric
Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

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This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Dylan Rowley

Description of item under review for fair use: Figure 1.2 Thermodynamic Description of Particle Bubble Attachment Yoon, R. (2011). Froth Flotation: Thermodynamics of Flotation. Blacksburg, Virginia.


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