

# Apex Labs

FINAL

12232 S.W. Garden Place  
Tigard, OR 97223  
503-718-2323 Phone  
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ROTO BLAST DUST  
CL1 WELDING DUST (WHEELABRATOR)  
CL2 " " (JET 3)  
CL3 " "

Monday, August 29, 2016

Bruce Schacht  
Columbia Steel Casting Co., Inc.  
PO Box 83095  
Portland, OR 97283

RE: Roto Blast & Weld Dust / [none]

Enclosed are the results of analyses for work order A6H0488, which was received by the laboratory between 8/11/2016 at 3:10:00PM and 8/18/2016 at 12:30:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: [KFriscia@apex-labs.com](mailto:KFriscia@apex-labs.com), or by phone at 503-718-2323.

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Apex Laboratories



Kevin J. Friscia, Project Manager

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Columbia Steel Casting Co., Inc.  
PO Box 83095  
Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
Project Number: [none]  
Project Manager: Bruce Schacht

Reported:  
08/29/16 16:43

## ANALYTICAL REPORT FOR SAMPLES

### SAMPLE INFORMATION

| Sample ID  | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|------------|---------------|--------|----------------|----------------|
| CL3        | A6H0488-07    | Solid  | 08/08/16 11:00 | 08/11/16 15:10 |
| RB Comp    | A6H0488-08    | Solid  | 08/08/16 10:00 | 08/11/16 15:10 |
| WB Comp    | A6H0488-09    | Solid  | 08/08/16 10:30 | 08/11/16 15:10 |
| CL 2 SET 3 | A6H0488-10    | Solid  | 08/18/16 12:00 | 08/11/16 15:10 |

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PO Box 83095  
Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
Project Number: [none]  
Project Manager: Bruce Schacht

Reported:  
08/29/16 16:43

## ANALYTICAL SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

| Analyte                        | Result       | MDL | Reporting Limit      | Units     | Dilution | Date Analyzed  | Method    | Notes |
|--------------------------------|--------------|-----|----------------------|-----------|----------|----------------|-----------|-------|
| <b>CL3 (A6H0488-07)</b>        |              |     | <b>Matrix: Solid</b> |           |          |                |           |       |
| Batch: 6080784                 |              |     |                      |           |          |                |           |       |
| <b>Arsenic</b>                 | <b>41.2</b>  | --- | 9.86                 | mg/kg     | 100      | 08/23/16 19:18 | EPA 6020A |       |
| <b>Barium</b>                  | <b>22.2</b>  | --- | 9.86                 | "         | "        | "              | "         |       |
| Cadmium                        | ND           | --- | 1.97                 | "         | "        | "              | "         | R-04  |
| <b>Chromium</b>                | <b>3160</b>  | --- | 9.86                 | "         | "        | "              | "         |       |
| <b>Lead</b>                    | <b>36.2</b>  | --- | 1.97                 | "         | "        | "              | "         |       |
| Mercury                        | ND           | --- | 0.789                | "         | "        | "              | "         | R-04  |
| Selenium                       | ND           | --- | 9.86                 | "         | "        | "              | "         | R-04  |
| Silver                         | ND           | --- | 1.97                 | "         | "        | "              | "         | R-04  |
| <b>RB Comp (A6H0488-08)</b>    |              |     | <b>Matrix: Solid</b> |           |          |                |           |       |
| Batch: 6080784                 |              |     |                      |           |          |                |           |       |
| <b>Arsenic</b>                 | <b>19.5</b>  | --- | 11.0                 | mg/kg     | 100      | 08/23/16 19:21 | EPA 6020A |       |
| Barium                         | ND           | --- | 11.0                 | "         | "        | "              | "         | R-04  |
| Cadmium                        | ND           | --- | 2.19                 | "         | "        | "              | "         | R-04  |
| <b>Chromium</b>                | <b>2890</b>  | --- | 11.0                 | "         | "        | "              | "         |       |
| <b>Lead</b>                    | <b>12.1</b>  | --- | 2.19                 | "         | "        | "              | "         |       |
| Mercury                        | ND           | --- | 0.877                | "         | "        | "              | "         | R-04  |
| Selenium                       | ND           | --- | 11.0                 | "         | "        | "              | "         | R-04  |
| Silver                         | ND           | --- | 2.19                 | "         | "        | "              | "         | R-04  |
| <b>WB Comp (A6H0488-09)</b>    |              |     | <b>Matrix: Solid</b> |           |          |                |           |       |
| Batch: 6080784                 |              |     |                      |           |          |                |           |       |
| <b>Arsenic</b>                 | <b>53.0</b>  | --- | 10.7                 | mg/kg     | 100      | 08/23/16 19:24 | EPA 6020A |       |
| <b>Barium</b>                  | <b>29.5</b>  | --- | 10.7                 | "         | "        | "              | "         |       |
| Cadmium                        | ND           | --- | 2.13                 | "         | "        | "              | "         | R-04  |
| <b>Chromium</b>                | <b>2690</b>  | --- | 10.7                 | "         | "        | "              | "         |       |
| <b>Lead</b>                    | <b>49.4</b>  | --- | 2.13                 | "         | "        | "              | "         |       |
| Mercury                        | ND           | --- | 0.853                | "         | "        | "              | "         | R-04  |
| Selenium                       | ND           | --- | 10.7                 | "         | "        | "              | "         | R-04  |
| Silver                         | ND           | --- | 2.13                 | "         | "        | "              | "         | R-04  |
| <b>CL 2 SET 3 (A6H0488-10)</b> |              |     | <b>Matrix: Solid</b> |           |          |                |           |       |
| Batch: 6080753                 |              |     |                      |           |          |                |           |       |
| <b>Barium</b>                  | <b>9.99</b>  | --- | 1.11                 | mg/kg wet | 10       | 08/22/16 19:14 | EPA 6020A |       |
| <b>Cadmium</b>                 | <b>0.509</b> | --- | 0.221                | "         | "        | "              | "         |       |
| <b>Lead</b>                    | <b>2.36</b>  | --- | 0.221                | "         | "        | "              | "         |       |
| Mercury                        | ND           | --- | 0.0885               | "         | "        | "              | "         |       |

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Kevin J. Friscia, Project Manager

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|  |  |                             |
|--|--|-----------------------------|
| Columbia Steel Casting Co., Inc.<br>PO Box 83095<br>Portland, OR 97283 | Project: <b>Roto Blast &amp; Weld Dust</b><br>Project Number: [none]<br>Project Manager: Bruce Schacht | Reported:<br>08/29/16 16:43 |
|--|--|-----------------------------|

## ANALYTICAL SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

| Analyte                           | Result | MDL | Reporting Limit      | Units     | Dilution | Date Analyzed  | Method    | Notes |
|-----------------------------------|--------|-----|----------------------|-----------|----------|----------------|-----------|-------|
| <b>CL 2 SET 3 (A6H0488-10)</b>    |        |     | <b>Matrix: Solid</b> |           |          |                |           |       |
| Silver                            | 0.542  | --- | 0.221                | mg/kg wet | 10       | "              | EPA 6020A |       |
| <b>CL 2 SET 3 (A6H0488-10RE2)</b> |        |     | <b>Matrix: Solid</b> |           |          |                |           |       |
| Batch: 6080753                    |        |     |                      |           |          |                |           |       |
| Arsenic                           | 13.0   | --- | 5.53                 | mg/kg wet | 50       | 08/24/16 13:19 | EPA 6020A |       |
| Chromium                          | 2280   | --- | 5.53                 | "         | "        | "              | "         |       |
| Selenium                          | ND     | --- | 11.1                 | "         | "        | "              | "         | R-04  |

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Columbia Steel Casting Co., Inc.  
 PO Box 83095  
 Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
 Project Number: [none]  
 Project Manager: Bruce Schacht

Reported:  
 08/29/16 16:43

## ANALYTICAL SAMPLE RESULTS

### TCLP Metals by EPA 6020 (ICPMS)

| Analyte                     | Result | MDL | Reporting Limit      | Units | Dilution | Date Analyzed  | Method     | Notes             |
|-----------------------------|--------|-----|----------------------|-------|----------|----------------|------------|-------------------|
| <b>CL3 (A6H0488-07)</b>     |        |     | <b>Matrix: Solid</b> |       |          |                |            |                   |
| Batch: 6080855              |        |     |                      |       |          |                |            |                   |
| Arsenic                     | ND     | --- | 0.500                | mg/L  | 25       | 08/24/16 16:31 | 1311/6020A | Q-44, R-04, TCLPa |
| Barium                      | ND     | --- | 2.50                 | "     | "        | "              | "          | Q-44, R-04, TCLPa |
| Cadmium                     | ND     | --- | 0.250                | "     | "        | "              | "          | Q-44, R-04, TCLPa |
| Chromium                    | ND     | --- | 0.500                | "     | "        | "              | "          | Q-44, R-04, TCLPa |
| Lead                        | ND     | --- | 0.250                | "     | "        | "              | "          | Q-44, R-04, TCLPa |
| Mercury                     | ND     | --- | 0.0200               | "     | "        | "              | "          | Q-44, R-04, TCLPa |
| Selenium                    | ND     | --- | 0.500                | "     | "        | "              | "          | Q-44, R-04, TCLPa |
| Silver                      | ND     | --- | 0.250                | "     | "        | "              | "          | Q-44, R-04, TCLPa |
| <b>RB Comp (A6H0488-08)</b> |        |     | <b>Matrix: Solid</b> |       |          |                |            |                   |
| Batch: 6080854              |        |     |                      |       |          |                |            |                   |
| Arsenic                     | ND     | --- | 0.100                | mg/L  | 5        | 08/24/16 19:18 | 1311/6020A | Q-44              |
| Barium                      | ND     | --- | 0.500                | "     | "        | "              | "          | Q-44              |
| Cadmium                     | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44              |
| Chromium                    | ND     | --- | 0.100                | "     | "        | "              | "          | Q-44              |
| Lead                        | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44              |
| Mercury                     | ND     | --- | 0.00400              | "     | "        | "              | "          | Q-44              |
| Selenium                    | ND     | --- | 0.100                | "     | "        | "              | "          | Q-44              |
| Silver                      | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44              |
| <b>WB Comp (A6H0488-09)</b> |        |     | <b>Matrix: Solid</b> |       |          |                |            |                   |
| Batch: 6080854              |        |     |                      |       |          |                |            |                   |
| Arsenic                     | ND     | --- | 0.100                | mg/L  | 5        | 08/24/16 19:36 | 1311/6020A | Q-44              |
| Barium                      | ND     | --- | 0.500                | "     | "        | "              | "          | Q-44              |
| Cadmium                     | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44              |
| Chromium                    | ND     | --- | 0.100                | "     | "        | "              | "          | Q-44              |
| Lead                        | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44              |
| Mercury                     | ND     | --- | 0.00400              | "     | "        | "              | "          | Q-44              |
| Selenium                    | ND     | --- | 0.100                | "     | "        | "              | "          | Q-44              |
| Silver                      | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44              |

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 PO Box 83095  
 Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
 Project Number: [none]  
 Project Manager: Bruce Schacht

Reported:  
 08/29/16 16:43

## ANALYTICAL SAMPLE RESULTS

### TCLP Metals by EPA 6020 (ICPMS)

| Analyte                        | Result | MDL | Reporting Limit      | Units | Dilution | Date Analyzed  | Method     | Notes |
|--------------------------------|--------|-----|----------------------|-------|----------|----------------|------------|-------|
| <b>CL 2 SET 3 (A6H0488-10)</b> |        |     | <b>Matrix: Solid</b> |       |          |                |            |       |
| Batch: 6080854                 |        |     |                      |       |          |                |            |       |
| Arsenic                        | ND     | --- | 0.100                | mg/L  | 5        | 08/24/16 19:39 | 1311/6020A | Q-44  |
| Barium                         | ND     | --- | 0.500                | "     | "        | "              | "          | Q-44  |
| Cadmium                        | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44  |
| Chromium                       | ND     | --- | 0.100                | "     | "        | "              | "          | Q-44  |
| Lead                           | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44  |
| Mercury                        | ND     | --- | 0.00400              | "     | "        | "              | "          | Q-44  |
| Selenium                       | ND     | --- | 0.100                | "     | "        | "              | "          | Q-44  |
| Silver                         | ND     | --- | 0.0500               | "     | "        | "              | "          | Q-44  |

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**Columbia Steel Casting Co., Inc.**  
 PO Box 83095  
 Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
 Project Number: [none]  
 Project Manager: Bruce Schacht

Reported:  
 08/29/16 16:43

## QUALITY CONTROL (QC) SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

| Analyte | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----|-----------------|-------|------|--------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----|-----------------|-------|------|--------------|---------------|------|-------------|-----|-----------|-------|

#### Batch 6080753 - EPA 3051A

#### Soil

##### Blank (6080753-BLK1)

Prepared: 08/22/16 09:25 Analyzed: 08/22/16 18:23

##### EPA 6020A

|          |    |     |        |           |    |     |     |     |     |     |     |     |
|----------|----|-----|--------|-----------|----|-----|-----|-----|-----|-----|-----|-----|
| Arsenic  | ND | --- | 1.00   | mg/kg wet | 10 | --- | --- | --- | --- | --- | --- | --- |
| Barium   | ND | --- | 1.00   | "         | "  | --- | --- | --- | --- | --- | --- | --- |
| Cadmium  | ND | --- | 0.200  | "         | "  | --- | --- | --- | --- | --- | --- | --- |
| Chromium | ND | --- | 1.00   | "         | "  | --- | --- | --- | --- | --- | --- | --- |
| Lead     | ND | --- | 0.200  | "         | "  | --- | --- | --- | --- | --- | --- | --- |
| Mercury  | ND | --- | 0.0800 | "         | "  | --- | --- | --- | --- | --- | --- | --- |
| Selenium | ND | --- | 2.00   | "         | "  | --- | --- | --- | --- | --- | --- | --- |
| Silver   | ND | --- | 0.200  | "         | "  | --- | --- | --- | --- | --- | --- | --- |

##### LCS (6080753-BS1)

Prepared: 08/22/16 09:25 Analyzed: 08/22/16 18:29

##### EPA 6020A

|          |      |     |        |           |    |      |     |     |         |     |     |     |
|----------|------|-----|--------|-----------|----|------|-----|-----|---------|-----|-----|-----|
| Arsenic  | 50.0 | --- | 1.00   | mg/kg wet | 10 | 50.0 | --- | 100 | 80-120% | --- | --- | --- |
| Barium   | 50.1 | --- | 1.00   | "         | "  | "    | --- | 100 | "       | --- | --- | --- |
| Cadmium  | 49.6 | --- | 0.200  | "         | "  | "    | --- | 99  | "       | --- | --- | --- |
| Chromium | 49.6 | --- | 1.00   | "         | "  | "    | --- | 99  | "       | --- | --- | --- |
| Lead     | 50.9 | --- | 0.200  | "         | "  | "    | --- | 102 | "       | --- | --- | --- |
| Mercury  | 1.01 | --- | 0.0800 | "         | "  | 1.00 | --- | 101 | "       | --- | --- | --- |
| Selenium | 27.2 | --- | 2.00   | "         | "  | 25.0 | --- | 109 | "       | --- | --- | --- |
| Silver   | 24.8 | --- | 0.200  | "         | "  | "    | --- | 99  | "       | --- | --- | --- |

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 PO Box 83095  
 Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
 Project Number: [none]  
 Project Manager: Bruce Schacht

Reported:  
 08/29/16 16:43

## QUALITY CONTROL (QC) SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

| Analyte | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----|-----------------|-------|------|--------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----|-----------------|-------|------|--------------|---------------|------|-------------|-----|-----------|-------|

#### Batch 6080784 - EPA 3051A

#### Solid

##### Blank (6080784-BLK1)

Prepared: 08/22/16 17:41 Analyzed: 08/23/16 14:26

##### EPA 6020A

|          |    |     |        |       |    |     |     |     |     |     |     |  |
|----------|----|-----|--------|-------|----|-----|-----|-----|-----|-----|-----|--|
| Arsenic  | ND | --- | 1.00   | mg/kg | 10 | --- | --- | --- | --- | --- | --- |  |
| Barium   | ND | --- | 1.00   | "     | "  | --- | --- | --- | --- | --- | --- |  |
| Cadmium  | ND | --- | 0.200  | "     | "  | --- | --- | --- | --- | --- | --- |  |
| Chromium | ND | --- | 1.00   | "     | "  | --- | --- | --- | --- | --- | --- |  |
| Lead     | ND | --- | 0.200  | "     | "  | --- | --- | --- | --- | --- | --- |  |
| Mercury  | ND | --- | 0.0800 | "     | "  | --- | --- | --- | --- | --- | --- |  |
| Selenium | ND | --- | 1.00   | "     | "  | --- | --- | --- | --- | --- | --- |  |
| Silver   | ND | --- | 0.200  | "     | "  | --- | --- | --- | --- | --- | --- |  |

##### LCS (6080784-BS1)

Prepared: 08/22/16 17:41 Analyzed: 08/23/16 14:29

##### EPA 6020A

|          |      |     |        |       |    |      |     |     |         |     |     |  |
|----------|------|-----|--------|-------|----|------|-----|-----|---------|-----|-----|--|
| Arsenic  | 50.6 | --- | 1.00   | mg/kg | 10 | 50.0 | --- | 101 | 80-120% | --- | --- |  |
| Barium   | 50.0 | --- | 1.00   | "     | "  | "    | --- | 100 | "       | --- | --- |  |
| Cadmium  | 51.0 | --- | 0.200  | "     | "  | "    | --- | 102 | "       | --- | --- |  |
| Chromium | 49.8 | --- | 1.00   | "     | "  | "    | --- | 100 | "       | --- | --- |  |
| Lead     | 52.6 | --- | 0.200  | "     | "  | "    | --- | 105 | "       | --- | --- |  |
| Mercury  | 1.06 | --- | 0.0800 | "     | "  | 1.00 | --- | 106 | "       | --- | --- |  |
| Selenium | 28.0 | --- | 1.00   | "     | "  | 25.0 | --- | 112 | "       | --- | --- |  |
| Silver   | 26.0 | --- | 0.200  | "     | "  | "    | --- | 104 | "       | --- | --- |  |

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|--|--|-----------------------------|
| Columbia Steel Casting Co., Inc.<br>PO Box 83095<br>Portland, OR 97283 | Project: <b>Roto Blast &amp; Weld Dust</b><br>Project Number: [none]<br>Project Manager: Bruce Schacht | Reported:<br>08/29/16 16:43 |
|--|--|-----------------------------|

## QUALITY CONTROL (QC) SAMPLE RESULTS

### TCLP Metals by EPA 6020 (ICPMS)

| Analyte | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----|-----------------|-------|------|--------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----|-----------------|-------|------|--------------|---------------|------|-------------|-----|-----------|-------|

#### Batch 6080854 - EPA 1311/3015

#### Soil

##### Blank (6080854-BLK1)

Prepared: 08/24/16 09:43 Analyzed: 08/24/16 15:22

##### 1311/6020A

|          |    |     |         |      |   |     |     |     |     |     |     |      |
|----------|----|-----|---------|------|---|-----|-----|-----|-----|-----|-----|------|
| Arsenic  | ND | --- | 0.100   | mg/L | 5 | --- | --- | --- | --- | --- | --- | TCLP |
| Barium   | ND | --- | 0.500   | "    | " | --- | --- | --- | --- | --- | --- | TCLP |
| Cadmium  | ND | --- | 0.0500  | "    | " | --- | --- | --- | --- | --- | --- | TCLP |
| Chromium | ND | --- | 0.100   | "    | " | --- | --- | --- | --- | --- | --- | TCLP |
| Lead     | ND | --- | 0.0500  | "    | " | --- | --- | --- | --- | --- | --- | TCLP |
| Mercury  | ND | --- | 0.00400 | "    | " | --- | --- | --- | --- | --- | --- | TCLP |
| Selenium | ND | --- | 0.100   | "    | " | --- | --- | --- | --- | --- | --- | TCLP |
| Silver   | ND | --- | 0.0500  | "    | " | --- | --- | --- | --- | --- | --- | TCLP |

##### LCS (6080854-BS1)

Prepared: 08/24/16 09:43 Analyzed: 08/24/16 15:25

##### 1311/6020A

|          |        |     |         |      |   |        |     |     |         |     |     |            |
|----------|--------|-----|---------|------|---|--------|-----|-----|---------|-----|-----|------------|
| Arsenic  | 2.46   | --- | 0.100   | mg/L | 5 | 2.50   | --- | 98  | 80-120% | --- | --- | TCLP       |
| Barium   | 2.41   | --- | 0.500   | "    | " | "      | --- | 96  | "       | --- | --- | TCLP       |
| Cadmium  | 2.65   | --- | 0.0500  | "    | " | "      | --- | 106 | "       | --- | --- | TCLP       |
| Chromium | 2.34   | --- | 0.100   | "    | " | "      | --- | 94  | "       | --- | --- | TCLP       |
| Lead     | 2.64   | --- | 0.0500  | "    | " | "      | --- | 106 | "       | --- | --- | TCLP       |
| Mercury  | 0.0548 | --- | 0.00400 | "    | " | 0.0500 | --- | 110 | "       | --- | --- | Q-41, TCLP |
| Selenium | 2.57   | --- | 0.100   | "    | " | 2.50   | --- | 103 | "       | --- | --- | TCLP       |
| Silver   | 1.25   | --- | 0.0500  | "    | " | 1.25   | --- | 100 | "       | --- | --- | TCLP       |

##### Matrix Spike (6080854-MS2)

Prepared: 08/24/16 09:43 Analyzed: 08/24/16 19:33

##### QC Source Sample: RB Comp (A6H0488-08)

##### 1311/6020A

|          |        |     |         |      |   |        |        |     |         |     |     |  |
|----------|--------|-----|---------|------|---|--------|--------|-----|---------|-----|-----|--|
| Arsenic  | 2.35   | --- | 0.100   | mg/L | 5 | 2.50   | ND     | 94  | 50-150% | --- | --- |  |
| Barium   | 2.42   | --- | 0.500   | "    | " | "      | ND     | 97  | "       | --- | --- |  |
| Cadmium  | 2.57   | --- | 0.0500  | "    | " | "      | ND     | 103 | "       | --- | --- |  |
| Chromium | 2.37   | --- | 0.100   | "    | " | "      | 0.0735 | 92  | "       | --- | --- |  |
| Lead     | 2.59   | --- | 0.0500  | "    | " | "      | ND     | 103 | "       | --- | --- |  |
| Mercury  | 0.0545 | --- | 0.00400 | "    | " | 0.0500 | ND     | 109 | "       | --- | --- |  |
| Selenium | 2.46   | --- | 0.100   | "    | " | 2.50   | ND     | 99  | "       | --- | --- |  |
| Silver   | 1.22   | --- | 0.0500  | "    | " | 1.25   | ND     | 98  | "       | --- | --- |  |

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Kevin J. Friscia, Project Manager

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Columbia Steel Casting Co., Inc.  
PO Box 83095  
Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
Project Number: [none]  
Project Manager: Bruce Schacht

Reported:  
08/29/16 16:43

## QUALITY CONTROL (QC) SAMPLE RESULTS

### TCLP Metals by EPA 6020 (ICPMS)

| Analyte                              | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--------------------------------------|--------|-----|-----------------|-------|------|--------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch 6080854 - EPA 1311/3015</b> |        |     |                 |       |      |              | <b>Soil</b>   |      |             |     |           |       |

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Kevin J. Friscia, Project Manager

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|  |  |                             |
|--|--|-----------------------------|
| Columbia Steel Casting Co., Inc.<br>PO Box 83095<br>Portland, OR 97283 | Project: <b>Roto Blast &amp; Weld Dust</b><br>Project Number: [none]<br>Project Manager: Bruce Schacht | Reported:<br>08/29/16 16:43 |
|--|--|-----------------------------|

## QUALITY CONTROL (QC) SAMPLE RESULTS

### TCLP Metals by EPA 6020 (ICPMS)

| Analyte                                    | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount                                      | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--|--------|-----|-----------------|-------|------|---|---------------|------|-------------|-----|-----------|-------|
| <b>Batch 6080855 - EPA 1311/3015</b>       |        |     |                 |       |      | <b>Solid</b>                                      |               |      |             |     |           |       |
| <b>Blank (6080855-BLK1)</b>                |        |     |                 |       |      | Prepared: 08/24/16 09:47 Analyzed: 08/24/16 16:10 |               |      |             |     |           |       |
| <b>1311/6020A</b>                          |        |     |                 |       |      |   |               |      |             |     |           |       |
| Arsenic                                    | ND     | --- | 0.100           | mg/L  | 5    | ---   | ---           | ---  | ---         | --- | ---       | TCLPb |
| Barium                                     | ND     | --- | 0.500           | "     | "    | ---   | ---           | ---  | ---         | --- | ---       | TCLPb |
| Cadmium                                    | ND     | --- | 0.0500          | "     | "    | ---   | ---           | ---  | ---         | --- | ---       | TCLPb |
| Chromium                                   | ND     | --- | 0.100           | "     | "    | ---   | ---           | ---  | ---         | --- | ---       | TCLPb |
| Lead                                       | ND     | --- | 0.0500          | "     | "    | ---   | ---           | ---  | ---         | --- | ---       | TCLPb |
| Mercury                                    | ND     | --- | 0.00400         | "     | "    | ---   | ---           | ---  | ---         | --- | ---       | TCLPb |
| Selenium                                   | ND     | --- | 0.100           | "     | "    | ---   | ---           | ---  | ---         | --- | ---       | TCLPb |
| Silver                                     | ND     | --- | 0.0500          | "     | "    | ---   | ---           | ---  | ---         | --- | ---       | TCLPb |
| <b>LCS (6080855-BS1)</b>                   |        |     |                 |       |      | Prepared: 08/24/16 09:47 Analyzed: 08/24/16 16:13 |               |      |             |     |           |       |
| <b>1311/6020A</b>                          |        |     |                 |       |      |   |               |      |             |     |           |       |
| Arsenic                                    | 2.47   | --- | 0.100           | mg/L  | 5    | 2.50  | ---           | 99   | 80-120%     | --- | ---       | TCLPb |
| Barium                                     | 2.45   | --- | 0.500           | "     | "    | "   | ---           | 98   | "           | --- | ---       | TCLPb |
| Cadmium                                    | 2.65   | --- | 0.0500          | "     | "    | "   | ---           | 106  | "           | --- | ---       | TCLPb |
| Chromium                                   | 2.36   | --- | 0.100           | "     | "    | "   | ---           | 94   | "           | --- | ---       | TCLPb |
| Lead                                       | 2.71   | --- | 0.0500          | "     | "    | "   | ---           | 109  | "           | --- | ---       | TCLPb |
| Mercury                                    | 0.0546 | --- | 0.00400         | "     | "    | 0.0500  | ---           | 109  | "           | --- | ---       | TCLPb |
| Selenium                                   | 2.64   | --- | 0.100           | "     | "    | 2.50  | ---           | 106  | "           | --- | ---       | TCLPb |
| Silver                                     | 1.27   | --- | 0.0500          | "     | "    | 1.25  | ---           | 102  | "           | --- | ---       | TCLPb |
| <b>Matrix Spike (6080855-MS1)</b>          |        |     |                 |       |      | Prepared: 08/24/16 09:47 Analyzed: 08/24/16 16:34 |               |      |             |     |           |       |
| <b>QC Source Sample: CL3 (A61H0488-07)</b> |        |     |                 |       |      |   |               |      |             |     |           |       |
| <b>1311/6020A</b>                          |        |     |                 |       |      |   |               |      |             |     |           |       |
| Arsenic                                    | 2.48   | --- | 0.500           | mg/L  | 25   | 2.50  | ND            | 99   | 50-150%     | --- | ---       |       |
| Barium                                     | 2.58   | --- | 2.50            | "     | "    | "   | ND            | 103  | "           | --- | ---       |       |
| Cadmium                                    | 2.68   | --- | 0.250           | "     | "    | "   | ND            | 107  | "           | --- | ---       |       |
| Chromium                                   | 2.49   | --- | 0.500           | "     | "    | "   | ND            | 100  | "           | --- | ---       |       |
| Lead                                       | 2.69   | --- | 0.250           | "     | "    | "   | ND            | 108  | "           | --- | ---       |       |
| Mercury                                    | 0.0509 | --- | 0.0200          | "     | "    | 0.0500  | ND            | 102  | "           | --- | ---       |       |
| Selenium                                   | 2.64   | --- | 0.500           | "     | "    | 2.50  | ND            | 106  | "           | --- | ---       |       |
| Silver                                     | 1.27   | --- | 0.250           | "     | "    | 1.25  | ND            | 102  | "           | --- | ---       |       |

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Kevin J. Friscia, Project Manager

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Columbia Steel Casting Co., Inc.  
PO Box 83095  
Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
Project Number: [none]  
Project Manager: Bruce Schacht

Reported:  
08/29/16 16:43

### QUALITY CONTROL (QC) SAMPLE RESULTS

#### TCLP Metals by EPA 6020 (ICPMS)

| Analyte                              | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--------------------------------------|--------|-----|-----------------|-------|------|--------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch 6080855 - EPA 1311/3015</b> |        |     |                 |       |      |              | <b>Solid</b>  |      |             |     |           |       |

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Kevin J. Friscia, Project Manager

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|  |  |                             |
|--|--|-----------------------------|
| Columbia Steel Casting Co., Inc.<br>PO Box 83095<br>Portland, OR 97283 | Project: <b>Roto Blast &amp; Weld Dust</b><br>Project Number: [none]<br>Project Manager: Bruce Schacht | Reported:<br>08/29/16 16:43 |
|--|--|-----------------------------|

### SAMPLE PREPARATION INFORMATION

#### Total Metals by EPA 6020 (ICPMS)

| Prep: EPA 3051A       |        |           |                |                |               | Sample        | Default | RL Prep |
|-----------------------|--------|-----------|----------------|----------------|---------------|---------------|---------|---------|
| Lab Number            | Matrix | Method    | Sampled        | Prepared       | Initial/Final | Initial/Final | Factor  |         |
| <u>Batch: 6080753</u> |        |           |                |                |               |               |         |         |
| A6H0488-10            | Solid  | EPA 6020A | 08/18/16 12:00 | 08/22/16 09:25 | 0.452g/50mL   | 0.5g/50mL     | 1.11    |         |
| A6H0488-10RE2         | Solid  | EPA 6020A | 08/18/16 12:00 | 08/22/16 09:25 | 0.452g/50mL   | 0.5g/50mL     | 1.11    |         |
| <u>Batch: 6080784</u> |        |           |                |                |               |               |         |         |
| A6H0488-07            | Solid  | EPA 6020A | 08/08/16 11:00 | 08/22/16 17:41 | 0.507g/50mL   | 0.5g/50mL     | 0.99    |         |
| A6H0488-08            | Solid  | EPA 6020A | 08/08/16 10:00 | 08/22/16 17:41 | 0.456g/50mL   | 0.5g/50mL     | 1.10    |         |
| A6H0488-09            | Solid  | EPA 6020A | 08/08/16 10:30 | 08/22/16 17:41 | 0.469g/50mL   | 0.5g/50mL     | 1.07    |         |

#### TCLP Metals by EPA 6020 (ICPMS)

| Prep: EPA 1311/3015   |        |            |                |                |               | Sample        | Default | RL Prep |
|-----------------------|--------|------------|----------------|----------------|---------------|---------------|---------|---------|
| Lab Number            | Matrix | Method     | Sampled        | Prepared       | Initial/Final | Initial/Final | Factor  |         |
| <u>Batch: 6080854</u> |        |            |                |                |               |               |         |         |
| A6H0488-08            | Solid  | 1311/6020A | 08/08/16 10:00 | 08/24/16 09:43 | 5mL/50mL      | 5mL/50mL      | 1.00    |         |
| A6H0488-09            | Solid  | 1311/6020A | 08/08/16 10:30 | 08/24/16 09:43 | 5mL/50mL      | 5mL/50mL      | 1.00    |         |
| A6H0488-10            | Solid  | 1311/6020A | 08/18/16 12:00 | 08/24/16 09:43 | 5mL/50mL      | 5mL/50mL      | 1.00    |         |
| <u>Batch: 6080855</u> |        |            |                |                |               |               |         |         |
| A6H0488-07            | Solid  | 1311/6020A | 08/08/16 11:00 | 08/24/16 09:47 | 5mL/50mL      | 5mL/50mL      | 1.00    |         |



Columbia Steel Casting Co., Inc.  
PO Box 83095  
Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
Project Number: [none]  
Project Manager: Bruce Schacht

Reported:  
08/29/16 16:43

## Notes and Definitions

### Qualifiers:

- Q-41 Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
- Q-44 Room temperature during the 18 hr. TCLP tumbling procedure exceeded EPA recommended temperature range by no more than +/-2 degrees C for a maximum of 3 hrs
- R-04 Reporting levels elevated due to dilution necessary for analysis.
- TCLP This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 6080820.
- TCLPa Limited sample volume. Leachate was prepared using less than the recommended amount of sample per EPA 1311 or 1312. To maintain consistency in leaching, the standard ratio of sample to leachate fluid was maintained.
- TCLPb This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 6080831.

### Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
- For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
- Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- \*\*\* Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



Kevin J. Friscia, Project Manager

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Columbia Steel Casting Co., Inc.  
 PO Box 83095  
 Portland, OR 97283

Project: **Roto Blast & Weld Dust**  
 Project Number: [none]  
 Project Manager: Bruce Schacht

Reported:  
 08/29/16 16:43

**APEX LABS**      CHAIN OF CUSTODY      Lab # **ALH0488**      COC **1 of 1**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

| COLUMBIA STEEL CASTING CO. Company              |          | Project Mgr: <b>SCHACHT</b>                |       | Project PO #                          |                 |
|---|----------|--|-------|---------------------------------------|-----------------|
| Address: <b>PO BOX 83095 PORTLAND, OR 97283</b> |          | Project: <b>ROTO BLAST &amp; WELD DUST</b> |       | Project: <b>5 @ COLUMBIASITEL.COM</b> |                 |
| Sampled by: <b>M.D.</b>                         |          | Date: <b>8/19/16</b>                       |       | Time: <b>10:20</b>                    |                 |
| Site Location: <b>WA</b>                        | LAB ID # | DATE                                       | TIME  | MATRIX                                | # OF CONTAINERS |
| Sample ID: <b>RB 1</b>                          |          | 8/19/16                                    | 10:20 |                                       | 1               |
| <b>RB 2</b>                                     |          | "  | 10:20 |                                       | 1               |
| <b>RB 3</b>                                     |          | "  | 10:20 |                                       | 1               |
| <b>WB 1</b>                                     |          | "  | 10:30 |                                       | 1               |
| <b>WB 2</b>                                     |          | "  | 10:30 |                                       | 1               |
| <b>WB 3</b>                                     |          | "  | 10:30 |                                       | 1               |
| <b>CL 3</b>                                     |          | "  | 11:00 |                                       | 1               |

  

| ANALYSIS REQUEST   |  |
|--|--|
| AL. Sb, As, Ba, Bi, Br, Cd, Cr, Cu, Fe, Ni, Pb, P, Se, Si, Sn, Ti, V, Zn |  |
| TOTAL DISS. TCF  |  |
| 1200-COLS  |  |
| 1200-Z   |  |
| TCLP Metals (8)  |  |
| RCA Metals (8)   |  |
| 600 T10  |  |
| 8082 PCBs  |  |
| 8270 SIM PAHs  |  |
| 8270 SVOC  |  |
| 8260 BTEX  |  |
| 8260 RBDN VOCs   |  |
| 8260 VOC   |  |
| NWTFH-CA   |  |
| NWTFH-DN   |  |
| NWTFH-HCD  |  |

  

| SPECIAL INSTRUCTIONS:   |  |
|---|--|
| MAKE SINGLE COMPOSITE SAMPLE FROM RB1, RB2, RB3, SAME FOR WB1, WB2, WB3 |  |

  

| RECEIVED BY:                       |                      |
|------------------------------------|----------------------|
| Signature: <b>Bruce Schacht</b>    | Date: <b>8-11-16</b> |
| Printed Name: <b>BRUCE SCHACHT</b> | Time: <b>15:10</b>   |

Apex Laboratories



Kevin J. Friscia, Project Manager

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Columbia Steel Casting Co., Inc.  
PO Box 83095  
Portland, OR 97283

Project: Roto Blast & Weld Dust  
Project Number: [none]  
Project Manager: Bruce Schacht

Reported:  
08/29/16 16:43

Lab T  
A6H0488  
COC 1 of 1

## CHAIN OF CUSTODY

### APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

| SAMPLE ID  | LAB ID # | DATE    | TIME  | MATRIX | # OF CONTAINERS | ANALYSIS REQUEST   | NORMAL TURN AROUND TIME (TAT) IN BUSINESS DAYS       |                          |  |
|--|----------|---------|-------|--------|-----------------|--|--|--------------------------|--|
|  |          |         |       |        |                 |  | YES  | NO                       |  |
| CL2-JET-3  |          | 8/19/16 | 12:00 |        | 1               | T.C.P. Metals (9)<br>R.C.R.A. Metals (8)<br>600 T.O.<br>8082 PCBs<br>8270 SMT PAHs<br>8270 SVOC<br>8260 BVOCs<br>8260 HVOCs<br>8260 RBDN VOCs<br>8260 VOCs Full Lab<br>NW TPH-GA<br>NW TPH-DX<br>NW TPH-HCID | <input checked="" type="checkbox"/>                  | <input type="checkbox"/> |  |
| Project Name: CL 2 WELD DUST<br>Project PO #: 503-286-0685<br>Address: PO BOX 83095 PORTLAND, OR 97283<br>Project Mgr: SCHACHT<br>Stamped by: BRUCE NELSON                                       |          |         |       |        |                 |  | SPECIAL INSTRUCTIONS:<br>ADD TO APEX PROJECT A6H0488 |                          |  |
| RELINQUISHED BY: <i>Bruce Schacht</i> (Signature)<br>RECEIVED BY: <i>Bruce Schacht</i> (Signature)<br>Date: 8/19/16<br>Time: 12:30<br>Project Name: CL2-JET-3<br>Company: COLUMBIA STEEL CASTING |          |         |       |        |                 |  |  |                          |  |

Apex Laboratories



Kevin J. Friscia, Project Manager

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