

**Commercial Paint Facility  
Registration**



Prepared for:  
Chimo Construction

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**Final Report**

June 18, 2015

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## COMMERCIAL PAINT FACILITY REGISTRATION

### UNDERTAKING AND PROPONENT

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## 1.0 UNDERTAKING AND PROPONENT

Name of Undertaking: Commercial Paint Facility

Name of Corporate Body: DF Barnes

Address: 45 Pepperrell Road  
St. John's, NL  
A1A 5N8

President: Mr. Glenn Byrne  
gbyrne@dfbarnes.com  
709.726.6820

Principal Contact for  
Environmental Assessment: Brendan Kelly  
DF Barnes  
Operations Manager  
bkelly@dfbarnes.com  
709.726.6820

## 2.0 THE UNDERTAKING

### 2.1 Background

DF Barnes, the parent company of DF Barnes Coatings, is proposing to construct and operate a Commercial Paint Facility (the Facility / the Project) at the existing DF Barnes location on Pepperrell Road in St. John's, NL. The building will be used for sandblasting, painting, and specialty coating of fabricated structures.

DF Barnes is a Newfoundland and Labrador owned and operated company, engaged in fabrication, maintenance, and industrial construction for the mining, oil and gas, and marine sectors. It was originally established as a small welding and metal fabrication shop in 1932. Since that time, it has evolved into an integrated and globally-focused organization helping clients meet the challenges of energy extraction, infrastructure development, and maritime transportation.

DF Barnes is committed to preservation of the environment and their policy is to operate in a manner that protects the health and safety of their employees, clients, subcontractors and the public, while complying with applicable laws and regulations. DF Barnes's Environmental Protection Policy is provided in Appendix A. It contains details about the handling of waste products and proper disposal, working near water, and development of environmental protection plans for projects, among other topics.



## COMMERCIAL PAINT FACILITY REGISTRATION

### DESCRIPTION OF THE UNDERTAKING

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DF Barnes Coatings is one of five separate business units operated under the DF Barnes corporate umbrella.

DF Barnes currently operates out of three buildings on Pepperrell Road in the east end of St. John's. One of the existing buildings is used for sandblasting and one is used for painting of materials produced in the adjacent welding shop.

## 2.2 Need for the Undertaking

The buildings currently used by DF Barnes for sandblasting and painting were not purpose-built. They were retro-fitted for their current use, and are currently not large enough to accommodate sandblasting and painting of very large fabricated pieces. These buildings would require substantial upgrades and expansion to continue to function as painting facilities. In addition, DF Barnes is in need of extra space to meet its growing demand for industrial fabrication, and for that space to meet the rigorous quality standards of the global oil and gas industry.

The Facility will employ state-of-the-art equipment and use processes to minimize noise and air emissions and produce a higher quality product.

## 3.0 DESCRIPTION OF THE UNDERTAKING

The Facility consists of a large purpose-built building on DF Barnes existing property in the east end of St. John's. The new Facility will house sandblasting and spray paint operations.

DF Barnes's existing sandblast and paint buildings are located on land that is zoned by the City of St. John's as Commercial Industrial. Commercial Industrial zoning does not permit industrial-scale paint operations. Therefore, the City will not permit these buildings to be upgraded or expanded for their current use. Upgrading has therefore been rejected as a potential alternative. DF Barnes has chosen to construct a new building for its painting requirements on adjacent land zoned as Industrial General, which allows this type of development / activity.

The new Facility will allow all operations related to sandblasting and painting to occur indoors. State of the art ventilation and silencing systems will provide a controlled environment for consistent and high quality application of paint and coatings, while minimizing noise and air emissions. The main warehouse area will be 27.5 m x 48.7 m and the smaller office area will be 6.1 m x 19.3 m. Building drawings are provided in Appendix B.

The existing sandblast and paint facilities will be decommissioned and will no longer be used for sandblasting and painting. Any future use of these buildings will be consistent with activities permitted within Commercial Industrial zoning.

## 3.1 Geographic Location

The civic address of the Facility is 45 Pepperrell Road in the east end of St. John's (Figure 3-1).

# COMMERCIAL PAINT FACILITY REGISTRATION

## DESCRIPTION OF THE UNDERTAKING

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Figure 3-1 Proposed Commercial Paint Facility Location

## COMMERCIAL PAINT FACILITY REGISTRATION

### DESCRIPTION OF THE UNDERTAKING

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## 3.2 Physical Features

The Facility consists of one building constructed on a previously-developed site in a small industrial park and has a footprint of approximately 1,450 m<sup>2</sup>. The site is designated by the City of St. John's as Industrial General, and zoned for the proposed use.

The rear of the site is located approximately 23 m from Lundrigan's Marsh, an area zoned as Open Space Reserve.

The new Facility will be built entirely within DF Barnes property boundaries and Commercial Industrial Zone, and will not intersect with the Open Space Reserve.

## 3.3 Construction

Specialized equipment for sandblasting, painting, and packaging will be installed and commissioned by September 2015. Construction is scheduled to be completed by September 2015.

Potential pollutants during construction include exhaust from heavy equipment and small amounts of solid waste. All heavy equipment used during construction is subject to regular maintenance to reduce emissions. Solid waste will be disposed of in accordance with applicable legislation. There will be no hazardous wastes associated with the construction phase. The Facility is located outside the required 15 m protected wetlands buffer, which complies with City of St. John's regulations for development near a protected area, and interactions with the marsh are not expected.

## 3.4 Operation

The operation at the Facility will involve sandblasting, painting and coating, and packaging of equipment for shipment. Each activity will take place in a dedicated enclosed space within the building. Items being processed will include structural steel frames and other equipment fabricated for industrial use. The hours of operation will be in accordance with applicable City of St. John's regulations and by-laws with respect to noise, and are expected to be Monday to Friday, 7:00 am to 5:00 pm. Painting and sandblasting will take place concurrently in the new building, each within a dedicated space.

The operational life of the Facility is predicted to be a minimum of 40 years.

Potential sources of pollution and measures to avoid or reduce environmental effects are provided in Sections 3.4.1 and 3.4.2.

### 3.4.1 Potential Sources of Pollution and Waste Disposal

Potential sources of pollution will include airborne emissions and solid waste from the sandblasting and painting processes.

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### DESCRIPTION OF THE UNDERTAKING

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#### 3.4.1.1 Air Emissions

Air emissions will be released from the sand blasting procedure itself, from disturbing the material being blasted and from the paint and coatings used to resurface items. Typical emissions will include particulate matter, particulate metals and volatile organic compounds (VOCs), all of which will be managed within the Facility (Appendix C).

The sand used for blasting at the existing and proposed facilities does not contain silica. An analysis of the sand is provided in Appendix D.

Odour is generally caused by the curing process of certain paints, or by the release of volatiles used as solvents and carriers in the paint. In order to reduce odour emissions, low solvent paints are preferred, and water-based paints are given preference over oil-based paints. In addition, the ventilation system is designed to vent to outside and reduce odour through dispersion in accordance with government regulations.

Air emissions from sandblasting and painting at the proposed Facility will be mitigated through the following:

- Enclosure of all related activities and associated equipment within the building, equipped with air pollution control. An air pollution control (APC) system will be used to minimize effects of operation on air quality. The Camfil Farr APC is the most technologically advanced dust collection system on the market. These dust collectors are guaranteed to meet applicable local and other current legislation of emission control standards. System capacity is in the range of 55,000 CFM. The outdoor unit shall be equipped with Hemipleat Gold Cone filter cartridges with an efficiency of 99.99% on 0.5 µm particles by weight (Appendix E);
- The exhaust air in the spray paint area will be filtered;
- Two explosion-proof exhaust fans shall exhaust the air. Filter banks on each of these systems shall be equipped with multiple Paint Pocket filters with ratings equivalent to MERV 8. These filters have an overall efficiency of 99.84%; and
- Recycling of solvents and paint according to environmental regulations and industry standards.

In addition to the mitigation measures identified above, operations at this Facility will conform to all regulations set out by Newfoundland and Labrador's *Occupational Health and Safety Act*. As well as the air pollution control system that will be installed, ground level concentrations of air pollutants at the Facility's property boundary are not expected to exceed the provincial *Air Pollution Control Regulations*.

Monitoring for particulate matter emissions will be conducted if required and at the request of the Newfoundland and Labrador Department of Environment and Conservation (NLDEC).

#### 3.4.1.2 Noise Emissions

Noise will be emitted from the Facility due to the activities and equipment involved in the sandblasting and commercial painting process. Residential areas are located approximately



## COMMERCIAL PAINT FACILITY REGISTRATION

### DESCRIPTION OF THE UNDERTAKING

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150 m to the north, west and south of the zoned Industrial General area. Existing sound levels in this area include traffic noise (Logy Bay Road) and general industrial and commercial noise from existing facilities in the zoned Industrial area.

The following measures will be taken to mitigate noise from the operation of the Facility:

- Installation of silencers to further reduce noise emissions from operational processes;
- Limiting noise generating activities to daytime hours (7 am to 5 pm), where possible and in accordance with City of St. John's by-laws, on Monday through Friday;
- Keeping all Facility doors closed to contain the noise; and
- Ceasing the operation of the existing facilities and activities (once the new Facility is operational), which are currently operated entirely outside.

With the above mitigation measures in place, the operation of the proposed Facility is not likely to result in sound levels exceeding Health Canada criteria.

Sound pressure level monitoring will be conducted if required and upon request of regulators. DF Barnes's Personal Protective Equipment Policy, which includes requirements for hearing protection, and a noise assessment of the existing facility, are in Appendix F.

#### 3.4.1.3 Solid and Liquid Waste

As stated in communication with the Newfoundland and Labrador department of Environment, sand produced during sandblasting has been tested for potential pollutants and has been determined to be non-hazardous waste. The waste sand has been approved by NLDEC Environmental Protection Division (formerly Pollution Prevention Division) for disposal in municipal landfill.

Minimal liquid waste will be produced as all paint and solvents are recycled according to environmental regulations and using industry-standard solvent recyclers and paint hardeners.

#### 3.4.2 Environmental Management

DF Barnes has been engaged in mediation with local residents through the City of St. John's to address concerns regarding air emissions and noise caused by the existing sandblasting and painting facilities.

DF Barnes's Environmental Protection Policy is described in Section 2.1 and provided in Appendix A.

### 3.5 Occupations

Construction of the Facility will require 50 employees in various occupations. Table 3.1 lists the number of workers required by position and National Occupational Classification (NOC) Code. All construction workers will be contracted by DF Barnes from Chimo Construction Ltd.

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Operation of the Facility will employ six workers: four painters (NOC Code 9226) and two sandblasters (NOC Code 9612). All operation workers will be direct employees of DF Barnes.

DF Barnes is an equal opportunity employer and one of the largest employers of female welders in all of Canada. DF Barnes supports the Canadian Association of Women in Construction (CAWIC) in its initiatives to advance women into leadership roles in the construction industry and has worked with CAWIC to increase the participation of women in its shops and field construction sites. DF Barnes is committed to providing quality services by establishing a qualified workforce that reflects the diverse population it serves. It is DF Barnes's policy to foster an environment that respects peoples dignity, ideas, beliefs, thereby ensuring equity and diversity in employment and ensuring customers and others have access to DF Barnes's facilities, products, services and grants as defined by Human Rights Legislation.

**Table 3.1 Employees Required During Construction of Commercial Paint Facility**

Category	NOC Code	Number of Employees
Site Management	0711	2
Carpenter	7271	5
Iron worker	7236	8
Labourer	7611	3
Electrician	7241	6
Plumber	7251	5
Sheet Metal Worker	7233	6
Sprinkler Fitter	7252	2
Drywall Worker	7284	4
Paint and Plaster	7294	3
Flooring Installer	7295	2
Heavy Equipment Operator	7521	4
<b>Total</b>		<b>50</b>

### 3.6 Project Related Documents

The following documents accompany this submission as appendices:

- DF Barnes Environmental Protection Policy (Appendix A)
- Building Drawings (Appendix B)
- MSDS List – DFB Coatings (Appendix C)
- Maxxam Certificate of Analysis (Sand) (Appendix D)
- Maxxam Elements by Atomic Spectroscopy (Soil) and Quality Assurance Report (Appendix D)
- Camfil Farr Air Pollution Control Capabilities Brochure (Appendix E)

## COMMERCIAL PAINT FACILITY REGISTRATION

### APPROVAL OF THE UNDERTAKING

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- Noise Exposure Assessment, Instantaneous Sound Levels and Noise Dosimetry, March 16, 2012 (Appendix F)
- DF Barnes Personal Protective Equipment Policy (Appendix F)
- Letter of Exemption from Buildings Accessibility Act and Regulations (Appendix G)
- Building Permit (February 27, 2015) (Appendix H)

## 4.0 APPROVAL OF THE UNDERTAKING

The following permits have been issued for the Facility:

- On November 27, 2014 the project was exempted from the provisions of the *Buildings Accessibility Act* and *Regulations* (Appendix G).
- On February 27, 2015 a building permit was issued for the foundation, site works and building envelope (Appendix H).
- On May 22, 2015, the original building permit was upgraded to full building permit.

## 5.0 SCHEDULE

Construction on the outer structure of the facility began in February 2015, coinciding with issuance of a building permit from the City of St. John's. Construction is scheduled to take approximately seven months, concluding in September 2015. The operational life of the facility is planned to be approximately 40 years.

## 6.0 FUNDING

There has been no funding for the Facility from any government body. The undertaking is entirely privately funded. The estimated total investment is approximately \$5 million.

## 7.0 SIGNATURE



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Glenn Byrne, CEO




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Date

# APPENDIX A

DF Barnes Environmental Protection Policy



	<b>SECTION 37</b> <b>Environmental Protection</b>	Document:	DFB-COR-HSE-MA-001	
		Date & Rev:	03/30/15	0
		Dept:	Safety	

## 37 ENVIRONMENTAL PROTECTION

### 37.1 POLICY STATEMENT

- 37.1.1 DF Barnes is committed to the preservation of Canada's environment. The threat to our environment is real and we have the opportunity to make a positive impact through leadership. Our goal is to become leaders in reduction, re-use, and recycling.
- 37.1.2 DF Barnes's policy is to operate in a manner that protects the environment and the health and safety of our employees, clients, subcontractors, and the public, while complying with applicable laws and regulations.
- 37.1.3 The goal of this policy is to provide the awareness, education, and direction required to minimize the environmental impacts of our activities and contribute to the creation of a waste-free environment.

**THE INFORMATION IN THIS POLICY DOES NOT TAKE PRECEDENCE OVER OH&S REGULATIONS. ALL EMPLOYEES SHOULD BE FAMILIAR WITH THE OH&S ACT AND REGULATIONS.**

### 37.2 COMPLIANCE

- 37.2.1 All DF Barnes employees will receive instruction on compliance with the terms of this policy, and with the regulations and Client requirements that govern waste management and spill containment.
- 37.2.2 The company will regularly audit its practices to ensure compliance and find effective remedies for any conditions found to be substandard. (Refer to the [Environmental Protection Audit Report \(DFB-COR-HSE-FM-031\)](#)).
- 37.2.3 DF Barnes will maintain environmental records and will make them available for audit.
- 37.2.4 DF Barnes commits to working with all Clients to remain compliant with legislation and applicable Regulations. We will provide assistance and cooperate with Clients in the following areas:
- a) Legislated and regulatory compliance
  - b) Environmental protection
  - c) Pollution prevention
  - d) Waste management
  - e) Inspections and audits

### 37.3 PREVENTION OF RELEASES

- 37.3.1 Waste materials will be controlled in a manner consistent with applicable legislation and the Client's site-specific requirements.
- 37.3.2 Waste products will be stored and shipped off-site in appropriate containers.

- 37.3.3 Wood, paper, and plastics will be separated and placed only in areas designated by waste management agencies.
- 37.3.4 Waste material for shipping off-site will be handled in compliance with Transportation of Dangerous Goods (TDG) legislation and disposed of at Client-approved locations/facilities.
- 37.3.5 Spill reporting will be conducted in accordance with TDG standards and provincial requirements.

#### 37.4 HOUSEKEEPING

- 37.4.1 Good housekeeping practices will be followed at all times.
- 37.4.2 Surplus materials will be returned to their designated storage areas.
- 37.4.3 Solvents and other controlled products will be stored according to WHMIS guidelines and requirements.
- 37.4.4 All spills and leaks will immediately be reported to the Client and the applicable governing authorities.
- 37.4.5 Oil spills will be cleaned without delay. Absorbent blankets, pads, socks, and trays will be used for spill control.
- 37.4.6 At the end of each workday, work sites will be left in an orderly fashion.
- 37.4.7 Materials will be secured, particularly at elevations, to avoid movement during windy conditions.
- 37.4.8 Burning of trash is not permitted without approval and a [Hot Work Permit \(DFB-COR-HSE-FM-046\)](#).

#### 37.5 FUELLING AND MAINTAINING EQUIPMENT

- 37.5.1 Fuelling and lubrication of equipment will be carried out in a way that minimizes the possibility of contamination of soil or water. Drip pans and absorbent pads will be used where it is probable that a spill could occur.
- 37.5.2 Fuels and other flammable materials will be contained only in approved containers. All small containers will be stored within an approved on-site containment system.
- 37.5.3 Fuel storage will be double containment and will be inspected by local authorities.
- 37.5.4 Spill kits will be located at each fuelling station and on all mobile equipment.
- 37.5.5 Fuel storage containers will be inspected, and inspection intervals recorded using a tagging system.

#### 37.6 WASTE MANAGEMENT AND DISPOSAL

- 37.6.1 DF Barnes will identify the types of waste and projected quantities for Client review.
- 37.6.2 Waste products will be disposed of only in approved areas.
- 37.6.3 Sewage spills shall be handled in a manner consistent with a hazardous material spill.
- 37.6.4 Contaminated wastes will be documented and disposed of in compliance with legislation and Client requirements. Unless specified by the Client, waste materials will be disposed of in the following types of containers:
  - 37.6.4.1 **BLUE** - 15 or 30 yard bins for inert waste (cement, ceramic material, stones).
  - 37.6.4.2 **BLUE** - 6 yard bins for general waste.
  - 37.6.4.3 **GREEN** - 1 yard bins for recyclables (paper, cardboard, beverage containers).

37.6.4.4 **RED** - Hazardous solid waste.

### 37.7 INCIDENT REPORTING

37.7.1 If a spill or release involves quantities of material greater than those listed in the table below, then upon Client approval, the following authorities will be contacted:

- a) Local Police
- b) DF Barnes Head Office
- c) Owner of vehicle/carrier
- d) Consignor/shipper of the product
- e) For infectious substances - Canutec at 613-992-4624

GUIDELINE - SPILL QUANTITIES FOR NOTIFICATION OF AUTHORITIES	
Class	Quantity*
1 - Explosives	50 kg OR any quantity that could pose a danger to public safety.
2 - Gases (flammable, non flammable, non-toxic)	Any quantity that could pose a danger to public safety, or any sustained release of 10 minutes or more.
3 - Flammable Liquids	200 L
4 - Flammable Substances	25 kg
5.1 - Oxidizers	50 kg or 50 L
5.2 - Organic Peroxides	1 kg or 1 L
6.1 - Toxic Substance	5 kg or 5 L
6.2 - Infectious Substance	1 kg, or 1 L, OR any quantity that could pose a danger to public safety.
7 - Radioactive	Any quantity that could pose a danger to public safety.
8 - Corrosives	5 kg or 5 L
9 - Miscellaneous	25 kg or 25 L
* Kg = kilogram L = liter	

37.7.2 DF Barnes will report all spills and environmental incidents using the *Client Environmental Incident Report*.

### 37.8 WORKING NEAR A BODY OF WATER

37.8.1 Any activities planned within a proximity determined by appropriate legislation of a natural watercourse, will be assessed by completing an SJHA.

37.8.2 Chemicals, fuels, and hazardous materials shall not, under any circumstances, be drained to runoff ditches.

### 37.9 TRAINING

37.9.1 DF Barnes will ensure that workers are WHMIS trained and aware of the hazards posed by all products or materials used.

37.9.2 DF Barnes will ensure that those responsible for the transportation of dangerous goods are trained to safely transport and store those products or materials.

37.9.3 Emergency Response - DF Barnes's [Emergency Preparedness Plan \(DFB-COR-HSE-FM-093\)](#) for each site will detail the measures to be taken in the event of an environmental incident. Training in sounding alarms and reporting incidents will be provided to all workers.

37.9.4 Training records will be retained for three (3) years.

### 37.10 ENVIRONMENTAL WORK PERMIT

37.10.1 Where required, DF Barnes will obtain and comply with the Client's Environmental Work Permits. Such permits may be required for the following locations or tasks:

37.10.1.1 Work within 500 meters of a river system.

37.10.1.2 Work within 100 meters of an archaeological or traditional use site.

37.10.1.3 Dewatering of excavations or work areas.

37.10.1.4 Diversion of water from a water body.

37.10.1.5 Work that generates hazardous waste or recyclables.

### 37.11 ENVIRONMENTAL PROTECTION PLANS

37.11.1 DF Barnes will develop and submit for approval a detailed [Work Plan \(DFB-COR-HSE-FM-042\)](#) whenever work involves any of the following:

37.11.1.1 Work within 500 meters of a river system.

37.11.1.2 Work within 100 meters of an archaeological or traditional use site.

37.11.1.3 Diversion of water from a water body.

### 37.12 WILDLIFE

37.12.1 No DF Barnes worker is permitted to feed or harass wildlife.

37.12.2 All wildlife sightings must be reported to the Safety Department.

37.12.3 The [Emergency Preparedness Plan \(DFB-COR-HSE-FM-093\)](#) will provide direction with respect to wildlife encounters.

### 37.13 INSPECTIONS

37.13.1 Planned and informal inspections will be conducted according to project requirements. Refer to the *Environmental Inspection Report* form (S37-F1). Unsafe acts and conditions and corrective actions will be documented and reported at Weekly Safety Meetings.

### 37.14 TRANSPORTATION OF DANGEROUS GOODS

37.14.1 Any substance is a dangerous good if it meets any of these criteria:

37.14.1.1 Fits into one or more of the nine classes defined in the TDG Act 2002, or

37.14.1.2 Is not listed in Schedule 1 of the Act, but meets the criteria of one or more classes, or

37.14.1.3 Is a forbidden dangerous good listed in Schedule 1 or 3 of the Act.

- 37.14.2 All workers required to handle or transport dangerous goods, as described in the federal legislation, will be trained before executing the work.
- 37.14.3 Products will be shipped, handled, and stored in accordance with legislated requirements.
- 37.14.4 DF Barnes responsibilities related to TDG are to:
- a) Provide training to employees as required. (Training is good for 3 years and is not transferable.)
  - b) Document training and ensure that documentation is signed by employer and employee.
  - c) Maintain records of all shipments.
- 37.14.5 Workers must use their TDG training to ensure that:
- a) Dangerous goods containers are suited to the dangerous goods being carried.
  - b) Containers are properly labeled.
  - c) The transporting vehicle has the placards required by Regulations.
  - d) A copy of the certificate is carried during transport.

### 37.15 AUDITS

- 37.15.1 Refer to the [\*Environmental Protection Audit Report \(DFB-COR-HSE-FM-031\)\*](#).

### 37.16 REFERENCES

- 37.16.1 [\*Environmental Inspection Report \(DFB-COR-HSE-CL-023\)\*](#)

# APPENDIX B

## Building Drawings

**PARTITION TYPES**

**P1** 16mm GYPSUM BOARD  
92mm STEEL STUDS @ 400mm o.c.  
16mm GYPSUM BOARD  
STUDS TO 100mm ABOVE CEILING.

**P2** 16mm TYPE 'X' GYPSUM BOARD  
92mm STEEL STUDS @ 400mm o.c.  
ROXUL BATT INSULATION  
16mm TYPE 'X' GYPSUM BOARD  
EXTEND WALL TO U/S OF STRUCTURE ABOVE  
1 HOUR FIRE RESISTANCE RATING

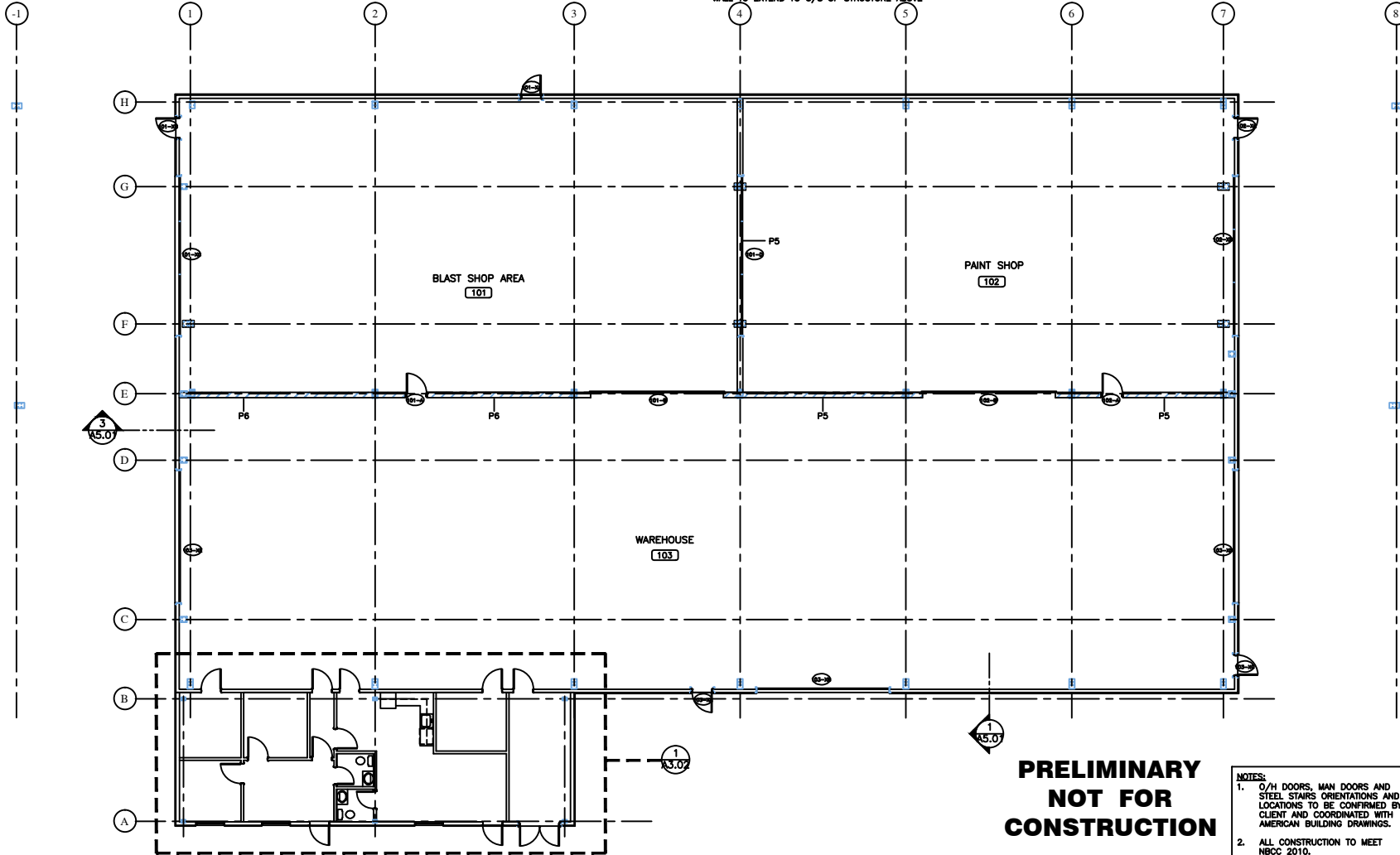
**P3** 16mm WATER AND MOULD RESISTANT GYPSUM BOARD ON WASHROOM SIDE  
92mm STEEL STUDS @ 400mm o.c.  
16mm GYPSUM BOARD ON LUNCH ROOM/ GENERAL AREA SIDE  
STUDS TO 100mm ABOVE CEILING.

**P4** 16mm TYPE 'X' GYPSUM BOARD  
92mm METAL STUDS @ 400mm o.c.  
16mm TYPE 'X' GYPSUM BOARD  
EXTEND WALL TO U/S OF STRUCTURE ABOVE  
1 HOUR FIRE RESISTANCE RATING

**P5** METAL LINER PANEL  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
152mm STRUCTURAL STEEL STUDS @ 400mm o.c.  
ROXUL BATT INSULATION  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
METAL LINER PANEL  
EXTEND WALL TO U/S OF STRUCTURE ABOVE

**P6** 240mm CONCRETE BLOCK TO 3048mm A.F.F.  
ON TOP OF CONCRETE BLOCK WALL, CONSTRUCTION IS AS FOLLOWS:  
METAL LINER PANEL ON BLAST SHOP AREA SIDE  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
152mm METAL STUDS @ 400mm o.c.  
ROXUL BATT INSULATION  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
WALL TO EXTEND TO U/S OF STRUCTURE ABOVE

**P7** 2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
22mm METAL FURRING CHANNELS  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
92mm METAL STUDS @ 400mm o.c.  
13mm GYPSUM BOARD  
EXTEND WALL TO U/S OF STRUCTURE ABOVE



**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

**NOTES:**  
1. O/H DOORS, MAN DOORS AND STEEL STAIRS ORIENTATIONS AND LOCATIONS TO BE CONFIRMED BY CLIENT AND COORDINATED WITH AMERICAN BUILDING DRAWINGS.  
2. ALL CONSTRUCTION TO MEET NBCC 2010.

FLOOR PLAN  
SCALE 1:100

1  
A3.01

CLIENT

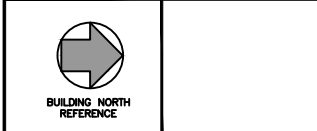
PROJECT

**NOTES:**  
1. CONTRACTOR MUST VERIFY ALL DIMENSIONS & CONDITIONS ON SITE BEFORE PROCEEDING WITH ANY PORTION OF THIS WORK. DO NOT SCALE FROM DRAWING

NO.	DESCRIPTION	DATE	BY

**REVISIONS**

A - PLAN/SECTION/ELEVATION/OR DETAIL NO.  
B - NO. OF DRAWING WHERE ABOVE IS DRAWN



**ARCHITECT**

Suite 201  
Caledonia Place  
40 Quidi Vidi Road  
St. John's, NL  
A1A 1C1  
Tel: 709.738.4422  
Fax: 709.738.4455

**PROJECT**

DF BARNES  
LOGY BAY ROAD  
ST. JOHN'S NL

**DRAWING**

BUILDING FLOOR PLAN

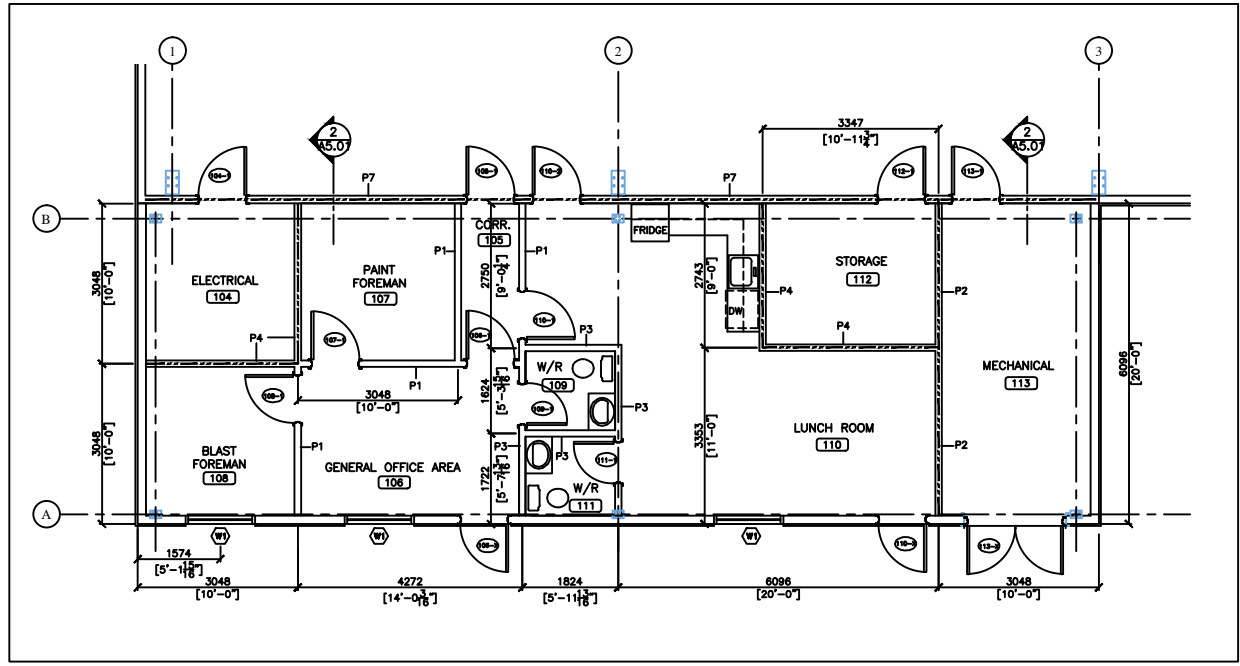
DRAWN BY S. DICKS	CHECKED BY G. SNOW	APPROVED BY G. SNOW
PROJECT NO. 14-1355-01	SCALE AS NOTED	DRAWING NO. A3.01
DATE OCT 2014	SCALE AS NOTED	REV. A

**PARTITION TYPES**

- P1 16mm GYPSUM BOARD  
92mm STEEL STUDS @ 400mm o.c.  
16mm GYPSUM BOARD  
STUDS TO 100mm ABOVE CEILING.
- P2 16mm TYPE 'X' GYPSUM BOARD  
92mm STEEL STUDS @ 400mm o.c.  
ROXUL BATT INSULATION  
16mm TYPE 'X' GYPSUM BOARD  
EXTEND WALL TO U/S OF STRUCTURE ABOVE  
1 HOUR FIRE RESISTANCE RATING
- P3 16mm WATER AND MOULD RESISTANT GYPSUM BOARD ON WASHROOM SIDE  
92mm STEEL STUDS @ 400mm o.c.  
16mm GYPSUM BOARD ON LUNCH ROOM/ GENERAL AREA SIDE  
STUDS TO 100mm ABOVE CEILING.
- P4 16mm TYPE 'X' GYPSUM BOARD  
92mm STEEL STUDS @ 400mm o.c.  
16mm TYPE 'X' GYPSUM BOARD  
EXTEND WALL TO U/S OF STRUCTURE ABOVE  
1 HOUR FIRE RESISTANCE RATING
- P5 METAL LINER PANEL  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
152mm STRUCTURAL STEEL STUDS @ 400mm o.c.  
ROXUL BATT INSULATION  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
METAL LINER PANEL  
EXTEND WALL TO U/S OF STRUCTURE ABOVE
- P6 240mm CONCRETE BLOCK TO 3048mm A.F.F.  
ON TOP OF CONCRETE BLOCK WALL, CONSTRUCTION IS AS FOLLOWS:  
METAL LINER PANEL ON BLAST SHOP AREA SIDE  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
152mm METAL STUDS @ 400mm o.c.  
ROXUL BATT INSULATION  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
WALL TO EXTEND TO U/S OF STRUCTURE ABOVE
- P7 2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
22mm METAL FURRING CHANNELS  
2 LAYERS OF 16mm TYPE 'X' GYPSUM BOARD  
92mm METAL STUDS @ 400mm o.c.  
13mm GYPSUM BOARD  
EXTEND WALL TO U/S OF STRUCTURE ABOVE

**LEGEND**

----- FIRE RATED PARTITION



**PARTIAL FLOOR PLAN**

SCALE 1:50

1  
A3.02

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

- NOTES:**
1. O/H DOORS, MAN DOORS AND STEEL STAIRS ORIENTATIONS AND LOCATIONS TO BE CONFIRMED BY CLIENT AND COORDINATED WITH AMERICAN BUILDING DRAWINGS.
  2. ALL CONSTRUCTION TO MEET NBCC 2010.

CLIENT

PROJECT NO. 14-1355-01 DF Barnes - Caledonia/2014/0000/2014-1355-01-01-0000

**NOTES:**

1. CONTRACTOR MUST VERIFY ALL DIMENSIONS & CONDITIONS ON SITE BEFORE PROCEEDING WITH ANY PORTION OF THIS WORK. DO NOT SCALE FROM DRAWING

NO.	DESCRIPTION	DATE	BY

**REVISIONS**

- A - PLAN/SECTION/ELEVATION/OR DETAIL NO.
- B - NO. OF DRAWING WHERE ABOVE IS DRAWN



**ARCHITECT**



Suite 201  
Caledonia Place  
40 Quail View Road  
St. John's, NL  
A1A 1C1  
Tel: 709.738.4422  
Fax: 709.738.4455

**PROJECT**

DF BARNES  
LOGY BAY ROAD

ST. JOHN'S NL

**DRAWING**

PARTIAL FLOOR PLAN

DRAWN BY S. DICKS	CHECKED BY G. SNOW	APPROVED BY G. SNOW
PROJECT NO. 14-1355-01	SCALE AS NOTED	DRAWING NO. A3.02
DATE OCT 2014	SCALE AS NOTED	REV. A



# APPENDIX C

MSDS List – DFB Coatings



## MSDS List - DFB Coatings

Product	Company	Location	Revision (mm/dd/yyyy)	Expiry Date
Acetone	Recochem	DFB Coatings	03/04/2013	11-Apr-17 x
Amercoat 65 Thinner	PPG Industries, Inc.	DFB Coatings	03/12/2014	4-Apr-17 x
Amercoat 68A Zinc Resin	PPG Industries, Inc.	DFB Coatings	05/16/2014	16-Apr-17 x
Amercoat 90 HS Cure	PPG Industries, Inc.	DFB Coatings	1-Apr-12	1-Apr-15 x
Amercoat 90HS White Resin	PPG Industries, Inc.	DFB Coatings	03/10/2014	10-Mar-17 x
Amercoat 235 Cure	PPG Industries, Inc.	DFB Coatings	01/24/2015	24-Jan-18 x
Amercoat 235 Oxide Red	PPG Industries, Inc.	DFB Coatings	02/09/2014	2-Sep-17 x
Amercoat 370 Base White	PPG Industries, Inc.	DFB Coatings	06/04/2014	6-Apr-17 x
Amercoat 370 Cure	PPG Industries, Inc.	DFB Coatings	1-Mar-13	1-Mar-16 x
Amercoat 370 Resin Ivory	PPG Industries, Inc.	DFB Coatings	01/30/2014	1-Mar-17 x
Amercoat 450H	PPG Industries, Inc.	DFB Coatings	1-Oct-13	1-Oct-16 x
Amercoat 450H Cure	PPG Industries, Inc.	DFB Coatings	03/12/2014	3-Dec-17 x
Amercoat 450H White Resin	PPG Industries, Inc.	DFB Coatings	03/10/2014	3-Oct-17 x
Amercoat 5450 White	PPG Industries, Inc.	DFB Coatings	06/09/2014	6-Sep-17 x
Amercoat 3279	PPG Industries, Inc.	DFB Coatings	1-Oct-12	1-Oct-15 x
Amerlock 2/400 Resin	PPG Industries, Inc.	DFB Coatings	02/08/2014	2-Aug-17 x
Amerlock2/400 White Resin	PPG Industries, Inc.	DFB Coatings	05/16/2014	16-May-17 x
Amerlock 2 Cure	PPG Industries, Inc.	DFB Coatings	03/16/2014	16-Mar-17 x
Amershield Resin	PPG Industries, Inc.	DFB Coatings	02/26/2014	26-Feb-17 x
Crown 7007/VG Cold Galvanize Coating 93% Zinc Rich - Bulk	PPG Industries, Inc.	DFB Coatings	04/04/2014	4-Apr-17 x
Devoe T9 Thinner	International Paint LLC	DFB Coatings	01/23/2013	23-Jan-16 x
Devran 224V Part B	International Paint LLC	DFB Coatings	03/29/2012	25-Aug-16
Devthane 389H - Polyuerthane	International Paint LLC	DFB Coatings	2-Sep-13	2-Sep-16 x

<u>Dimetcote 9 Powder</u>	PPG Industries, Inc.	DFB Coatings	11/02/2014	11-Feb-17 x
<u>Dimetcote 9 Liquid Inorganic Zinc</u>	PPG Industries, Inc.	DFB Coatings	03/10/2014	3-Oct-17 x
<u>Dimetcote 302H Clear Cure</u>	PPG Industries, Inc.	DFB Coatings	02/15/2014	15-Feb-17 x
<u>Dimetcote 302H Green Resin</u>	PPG Industries, Inc.	DFB Coatings	03/15/2014	15-Mar-17 x
<u>Everlube 1213 Solvent</u>	Everlube Products	DFB Coatings	10/30/2012	30-Oct-15 x
<u>Everslik 1201 Black</u>	Everlube Products	DFB Coatings	09/26/2012	26-Sep-15 x
<u>Flame</u>	Auto Valet Detailing Products	DFB Coatings	1-Nov-14	1-Nov-17 x
<u>Intercure 200HS Sand Part A</u>	International Paint LLC	DFB Coatings	03/02/2012	3-Feb-16
<u>Intercure 200HS Sand Part B</u>	International Paint LLC	DFB Coatings	03/02/2012	3-Feb-16
<u>Intergard 345 Base Light Part A</u>	International Paint LLC	DFB Coatings	10/17/2014	17-Oct-17 x
<u>Intergard 345 Part B</u>	International Paint LLC	DFB Coatings	10/17/2014	17-Oct-17 x
<u>International Thinner/EQMT Cleaner</u>	International Paint LLC	DFB Coatings	09/28/2013	28-Sep-16 x
<u>Interplate 937 Grey Part A</u>	International Paint LLC	DFB Coatings	10/21/2014	21-Oct-17 x
<u>Interplate 937 Part B</u>	International Paint LLC	DFB Coatings	09/26/2014	26-Sep-17 x
<u>Interprime 198 Red</u>	International Paint LLC	DFB Coatings	03/07/2012	3-Jul-15 x
<u>Interseal 670HS Base Ultra Deep Part A</u>	International Paint LLC	DFB Coatings	10/21/2014	21-Oct-17 x
<u>Interseal 670HS Part B Low Temperature</u>	International Paint LLC	DFB Coatings	09/28/2013	28-Sep-16 x
<u>Intersheidl 300 Alluminum Base</u>	International Paint LLC	DFB Coatings	08/25/2013	25-Aug-16 x
<u>Intershield 300 Part B</u>	International Paint LLC	DFB Coatings	09/28/2013	28-Sep-16 x
<u>Interthane 870 Base Ultra Deep Part A</u>	International Paint LLC	DFB Coatings	01/20/2015	20-Jan-18 x
<u>Interthane 870/870UHS Part B</u>	International Paint LLC	DFB Coatings	03/07/2014	3-Jul-17 x
<u>Interthane 990 Base Yellow Part A</u>	International Paint LLC	DFB Coatings	09/29/2013	29-Sep-16 x



## **APPENDIX D**

Maxxam Certificate of Analysis (Sand)

Maxxam Elements by Atomic Spectroscopy (Soil) and  
Quality Assurance Report

Your C.O.C. #: 06779

**Attention: Brendan Kelly**Orphan Industries  
45 Pepperall Road  
St John's , NL  
CANADA A1C 5PN**Report Date: 2011/08/25****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B1C7162****Received: 2011/08/20, 10:16**Sample Matrix: Soil  
# Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Metals Solid Avail. Unified MS - Nper	3	2011/08/23	2011/08/23	ATL SOP 00024 R5	Based on EPA6020A

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

## Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

KATIE COHOON, Bedford Client Services  
Email: KCohoon@maxxam.ca  
Phone# (902) 420-0203=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Page 1 of 9

Maxxam Job #: B1C7162  
 Report Date: 2011/08/25

**ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

Maxxam ID		KP8071		KP8081		
Sampling Date		2011/08/18		2011/08/18		
COC Number		06779		06779		
	<b>Units</b>	<b>SAMPLE 1 INSIDE BLAST HUT</b>	<b>RDL</b>	<b>SAMPLE 2 NEW SAND</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>						
Available Aluminum (Al)	mg/kg	1100	10	880	10	2590928
Available Antimony (Sb)	mg/kg	ND	2	ND	2	2590928
Available Arsenic (As)	mg/kg	ND	2	ND	2	2590928
Available Barium (Ba)	mg/kg	290	5	ND	5	2590928
Available Beryllium (Be)	mg/kg	ND	2	ND	2	2590928
Available Bismuth (Bi)	mg/kg	ND	2	ND	2	2590928
Available Boron (B)	mg/kg	19	5	14	5	2590928
Available Cadmium (Cd)	mg/kg	ND	0.3	ND	0.3	2590928
Available Chromium (Cr)	mg/kg	250	2	170	2	2590928
Available Cobalt (Co)	mg/kg	130	1	56	1	2590928
Available Copper (Cu)	mg/kg	78	2	4	2	2590928
Available Iron (Fe)	mg/kg	53000	500	19000	50	2590928
Available Lead (Pb)	mg/kg	6.8	0.5	1.6	0.5	2590928
Available Lithium (Li)	mg/kg	4	2	5	2	2590928
Available Manganese (Mn)	mg/kg	630	2	340	2	2590928
Available Mercury (Hg)	mg/kg	ND	0.1	ND	0.1	2590928
Available Molybdenum (Mo)	mg/kg	5	2	ND	2	2590928
Available Nickel (Ni)	mg/kg	1700	2	1300	2	2590928
Available Rubidium (Rb)	mg/kg	ND	2	ND	2	2590928
Available Selenium (Se)	mg/kg	ND	2	ND	2	2590928
Available Silver (Ag)	mg/kg	ND	0.5	ND	0.5	2590928
Available Strontium (Sr)	mg/kg	11	5	11	5	2590928
Available Thallium (Tl)	mg/kg	ND	0.1	ND	0.1	2590928
Available Tin (Sn)	mg/kg	2	2	ND	2	2590928
Available Uranium (U)	mg/kg	0.1	0.1	ND	0.1	2590928
Available Vanadium (V)	mg/kg	11	2	7	2	2590928
Available Zinc (Zn)	mg/kg	4900	5	40	5	2590928

 ND = Not detected  
 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B1C7162  
 Report Date: 2011/08/25

**ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

Maxxam ID		KP8082		
Sampling Date		2011/08/18		
COC Number		06779		
	<b>Units</b>	<b>SAMPLE 3 USED FROM STOCKPILE</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>				
Available Aluminum (Al)	mg/kg	1400	10	2590928
Available Antimony (Sb)	mg/kg	ND	2	2590928
Available Arsenic (As)	mg/kg	5	2	2590928
Available Barium (Ba)	mg/kg	210	5	2590928
Available Beryllium (Be)	mg/kg	ND	2	2590928
Available Bismuth (Bi)	mg/kg	ND	2	2590928
Available Boron (B)	mg/kg	16	5	2590928
Available Cadmium (Cd)	mg/kg	0.3	0.3	2590928
Available Chromium (Cr)	mg/kg	250	2	2590928
Available Cobalt (Co)	mg/kg	120	1	2590928
Available Copper (Cu)	mg/kg	150	2	2590928
Available Iron (Fe)	mg/kg	48000	500	2590928
Available Lead (Pb)	mg/kg	43	0.5	2590928
Available Lithium (Li)	mg/kg	6	2	2590928
Available Manganese (Mn)	mg/kg	490	2	2590928
Available Mercury (Hg)	mg/kg	ND	0.1	2590928
Available Molybdenum (Mo)	mg/kg	15	2	2590928
Available Nickel (Ni)	mg/kg	1600	2	2590928
Available Rubidium (Rb)	mg/kg	ND	2	2590928
Available Selenium (Se)	mg/kg	ND	2	2590928
Available Silver (Ag)	mg/kg	ND	0.5	2590928
Available Strontium (Sr)	mg/kg	13	5	2590928
Available Thallium (Tl)	mg/kg	ND	0.1	2590928
Available Tin (Sn)	mg/kg	3	2	2590928
Available Uranium (U)	mg/kg	0.2	0.1	2590928
Available Vanadium (V)	mg/kg	12	2	2590928
Available Zinc (Zn)	mg/kg	3900	5	2590928

ND = Not detected  
 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch



Maxxam Job #: B1C7162  
Report Date: 2011/08/25

Package 1	17.0°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**GENERAL COMMENTS**

**Results relate only to the items tested.**

Orphan Industries  
 Attention: Brendan Kelly  
 Client Project #:  
 P.O. #:  
 Site Location:

Quality Assurance Report  
 Maxxam Job Number: DB1C7162

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits	
2590928 KGU	Matrix Spike	Available Aluminum (Al)	2011/08/23		NC	%	75 - 125	
		Available Antimony (Sb)	2011/08/23		78	%	75 - 125	
		Available Arsenic (As)	2011/08/23		NC	%	75 - 125	
		Available Barium (Ba)	2011/08/23		NC	%	75 - 125	
		Available Beryllium (Be)	2011/08/23		113	%	75 - 125	
		Available Bismuth (Bi)	2011/08/23		100	%	75 - 125	
		Available Boron (B)	2011/08/23		96	%	75 - 125	
		Available Cadmium (Cd)	2011/08/23		111	%	75 - 125	
		Available Chromium (Cr)	2011/08/23		NC	%	75 - 125	
		Available Cobalt (Co)	2011/08/23		NC	%	75 - 125	
		Available Copper (Cu)	2011/08/23		NC	%	75 - 125	
		Available Iron (Fe)	2011/08/23		NC	%	75 - 125	
		Available Lead (Pb)	2011/08/23		NC	%	75 - 125	
		Available Lithium (Li)	2011/08/23		NC	%	75 - 125	
		Available Manganese (Mn)	2011/08/23		NC	%	75 - 125	
		Available Mercury (Hg)	2011/08/23		112	%	75 - 125	
		Available Molybdenum (Mo)	2011/08/23		107	%	75 - 125	
		Available Nickel (Ni)	2011/08/23		NC	%	75 - 125	
		Available Rubidium (Rb)	2011/08/23		NC	%	75 - 125	
		Available Selenium (Se)	2011/08/23		95	%	75 - 125	
		Available Silver (Ag)	2011/08/23		106	%	75 - 125	
		Available Strontium (Sr)	2011/08/23		NC	%	75 - 125	
		Available Thallium (Tl)	2011/08/23		107	%	75 - 125	
		Available Tin (Sn)	2011/08/23		107	%	75 - 125	
		Available Uranium (U)	2011/08/23		103	%	75 - 125	
		Available Vanadium (V)	2011/08/23		NC	%	75 - 125	
		Available Zinc (Zn)	2011/08/23		NC	%	75 - 125	
		QC Standard	Available Aluminum (Al)	2011/08/23		105	%	75 - 125
			Available Arsenic (As)	2011/08/23		127 (1)	%	75 - 125
			Available Barium (Ba)	2011/08/23		127 (1)	%	75 - 125
			Available Chromium (Cr)	2011/08/23		109	%	75 - 125
			Available Cobalt (Co)	2011/08/23		108	%	75 - 125
			Available Copper (Cu)	2011/08/23		98	%	75 - 125
Available Iron (Fe)	2011/08/23			105	%	75 - 125		
Available Lead (Pb)	2011/08/23			118	%	75 - 125		
Available Manganese (Mn)	2011/08/23			117	%	75 - 125		
Available Nickel (Ni)	2011/08/23			110	%	75 - 125		
Spiked Blank	Available Strontium (Sr)	2011/08/23		101	%	75 - 125		
	Available Vanadium (V)	2011/08/23		124	%	75 - 125		
	Available Zinc (Zn)	2011/08/23		109	%	75 - 125		
	Available Aluminum (Al)	2011/08/23		100	%	75 - 125		
	Available Antimony (Sb)	2011/08/23		87	%	75 - 125		
	Available Arsenic (As)	2011/08/23		107	%	75 - 125		
	Available Barium (Ba)	2011/08/23		100	%	75 - 125		
	Available Beryllium (Be)	2011/08/23		102	%	75 - 125		
	Available Bismuth (Bi)	2011/08/23		98	%	75 - 125		
	Available Boron (B)	2011/08/23		94	%	75 - 125		
Available Cadmium (Cd)	2011/08/23		104	%	75 - 125			
Available Chromium (Cr)	2011/08/23		99	%	75 - 125			
Available Cobalt (Co)	2011/08/23		102	%	75 - 125			
Available Copper (Cu)	2011/08/23		98	%	75 - 125			
Available Iron (Fe)	2011/08/23		101	%	75 - 125			
Available Lead (Pb)	2011/08/23		105	%	75 - 125			
Available Lithium (Li)	2011/08/23		98	%	75 - 125			
Available Manganese (Mn)	2011/08/23		100	%	75 - 125			

Orphan Industries  
 Attention: Brendan Kelly  
 Client Project #:  
 P.O. #:  
 Site Location:

## Quality Assurance Report (Continued)

Maxxam Job Number: DB1C7162

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits	
2590928 KGU	Spiked Blank	Available Mercury (Hg)	2011/08/23		105	%	75 - 125	
		Available Molybdenum (Mo)	2011/08/23		100	%	75 - 125	
		Available Nickel (Ni)	2011/08/23		100	%	75 - 125	
		Available Rubidium (Rb)	2011/08/23		107	%	75 - 125	
		Available Selenium (Se)	2011/08/23		96	%	75 - 125	
		Available Silver (Ag)	2011/08/23		101	%	75 - 125	
		Available Strontium (Sr)	2011/08/23		105	%	75 - 125	
		Available Thallium (Tl)	2011/08/23		98	%	75 - 125	
		Available Tin (Sn)	2011/08/23		102	%	75 - 125	
		Available Uranium (U)	2011/08/23		96	%	75 - 125	
	Available Vanadium (V)	2011/08/23		101	%	75 - 125		
	Available Zinc (Zn)	2011/08/23		101	%	75 - 125		
	Method Blank	Available Aluminum (Al)	2011/08/23		ND, RDL=10		mg/kg	
		Available Antimony (Sb)	2011/08/23		ND, RDL=2		mg/kg	
		Available Arsenic (As)	2011/08/23		ND, RDL=2		mg/kg	
		Available Barium (Ba)	2011/08/23		ND, RDL=5		mg/kg	
		Available Beryllium (Be)	2011/08/23		ND, RDL=2		mg/kg	
		Available Bismuth (Bi)	2011/08/23		ND, RDL=2		mg/kg	
		Available Boron (B)	2011/08/23		ND, RDL=5		mg/kg	
		Available Cadmium (Cd)	2011/08/23		ND, RDL=0.3		mg/kg	
		Available Chromium (Cr)	2011/08/23		ND, RDL=2		mg/kg	
		Available Cobalt (Co)	2011/08/23		ND, RDL=1		mg/kg	
		Available Copper (Cu)	2011/08/23		ND, RDL=2		mg/kg	
		Available Iron (Fe)	2011/08/23		ND, RDL=50		mg/kg	
		Available Lead (Pb)	2011/08/23		ND, RDL=0.5		mg/kg	
		Available Lithium (Li)	2011/08/23		ND, RDL=2		mg/kg	
		Available Manganese (Mn)	2011/08/23		ND, RDL=2		mg/kg	
		Available Mercury (Hg)	2011/08/23		ND, RDL=0.1		mg/kg	
		Available Molybdenum (Mo)	2011/08/23		ND, RDL=2		mg/kg	
		Available Nickel (Ni)	2011/08/23		ND, RDL=2		mg/kg	
		Available Rubidium (Rb)	2011/08/23		ND, RDL=2		mg/kg	
		Available Selenium (Se)	2011/08/23		ND, RDL=2		mg/kg	
		Available Silver (Ag)	2011/08/23		ND, RDL=0.5		mg/kg	
Available Strontium (Sr)		2011/08/23		ND, RDL=5		mg/kg		
Available Thallium (Tl)		2011/08/23		ND, RDL=0.1		mg/kg		
Available Tin (Sn)		2011/08/23		ND, RDL=2		mg/kg		
Available Uranium (U)		2011/08/23		ND, RDL=0.1		mg/kg		
Available Vanadium (V)		2011/08/23		ND, RDL=2		mg/kg		
Available Zinc (Zn)		2011/08/23		ND, RDL=5		mg/kg		
RPD	Available Aluminum (Al)	2011/08/23		4.6		%	35	
	Available Antimony (Sb)	2011/08/23		NC		%	35	
	Available Arsenic (As)	2011/08/23		10.9		%	35	
	Available Barium (Ba)	2011/08/23		3.4		%	35	
	Available Beryllium (Be)	2011/08/23		NC		%	35	
	Available Bismuth (Bi)	2011/08/23		NC		%	35	
	Available Boron (B)	2011/08/23		NC		%	35	
	Available Cadmium (Cd)	2011/08/23		NC		%	35	
	Available Chromium (Cr)	2011/08/23		0.6		%	35	
	Available Cobalt (Co)	2011/08/23		5.3		%	35	
	Available Copper (Cu)	2011/08/23		7.2		%	35	
	Available Iron (Fe)	2011/08/23		3.3		%	35	
	Available Lead (Pb)	2011/08/23		0.8		%	35	
	Available Lithium (Li)	2011/08/23		0.7		%	35	
	Available Manganese (Mn)	2011/08/23		4.3		%	35	
Available Mercury (Hg)	2011/08/23		NC		%	35		

Orphan Industries  
 Attention: Brendan Kelly  
 Client Project #:  
 P.O. #:  
 Site Location:

### Quality Assurance Report (Continued)

Maxxam Job Number: DB1C7162

QA/QC Batch				Date Analyzed				
Num Init	QC Type	Parameter		yyyy/mm/dd	Value	Recovery	Units	QC Limits
2590928	KGU RPD	Available Molybdenum (Mo)		2011/08/23	NC		%	35
		Available Nickel (Ni)		2011/08/23	1.5		%	35
		Available Rubidium (Rb)		2011/08/23	0.4		%	35
		Available Selenium (Se)		2011/08/23	NC		%	35
		Available Silver (Ag)		2011/08/23	NC		%	35
		Available Strontium (Sr)		2011/08/23	NC		%	35
		Available Thallium (Tl)		2011/08/23	NC		%	35
		Available Tin (Sn)		2011/08/23	NC		%	35
		Available Uranium (U)		2011/08/23	1.1		%	35
		Available Vanadium (V)		2011/08/23	4.8		%	35
		Available Zinc (Zn)		2011/08/23	1.4		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

( 1 ) Secondary RM is acceptable.

## Validation Signature Page

Maxxam Job #: B1C7162

---

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



---

JERRY ARENOVICH, Inorganics Manager

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



## **APPENDIX E**

Camfil Farr Air Pollution Control Capabilities Brochure



# Heavy-Duty Clean Air Solutions



## air pollution control

Camfil Farr APC

APC Capabilities Brochure

Applications & Market Focus





# Clean Air Solutions

## Cleaning up the workplace, for today... and tomorrow.

Saving energy and increasing production efficiency while controlling indoor air quality is a challenging aspect of plant management. Dust collectors—whether used for pollution control or product recovery—can impact all these areas. Camfil Farr APC can help solve your dust problems.

### State-of-the-art manufacturing

- State-of-the art testing facilities
-  Every piece of Camfil Farr APC equipment is manufactured at an ISO 9001 certified facility.
- The most technologically advanced dust collection systems on the market.
- Quality product from design to shipment.
- Four locations:  
Collectors can be built in Jonesboro, Arkansas, USA; Manchester, UK; Kuala Lumpur, Malaysia or Laval, Canada.
- Streamlined manufacturing through CNC production equipment and certified welders.
- Guaranteed high quality dust collectors available...*fast!*

### Worldwide Support

- **Readily available detailed information** on all Camfil Farr APC products and services.
- **Authorized Camfil Farr APC representatives near you.**
- **Camfil Farr APC trained specialists provide the best solutions** to today's complex air pollution challenges.

**Camfil Farr APC is a proud member of the Camfil Farr Group—  
A leading worldwide filtration company dedicated to clean air!**

### Mission Statement

*We will clean dust and fumes from factories,  
making them safer and more productive.*

*We will ship collectors fast while still  
giving the customer what they want.*

*We will be the most customer friendly company  
in the air pollution control business.*

*We will make the best dust collector in the business from  
an end user operation and maintenance viewpoint.*



Jonesboro, Arkansas, USA—  
Farr APC headquarters and production facility.





Gold Series® units on seed processing

**The most rugged, reliable, easy to maintain dust collectors you will ever own—GUARANTEED!**

**Engineering—Your filtration solution**

- You talk, we listen.
- Engineers can design a dust collector to fit your needs.
- Team of product support personnel dedicated to providing application engineering and processing your order.
- Engineers extensively involved with indoor air quality requirements.
- Fully-integrated manufacturing process—we make the dust collector and the filter cartridges in-house.



Gold Series® installation on weld smoke



ST STL side draft hoods for food additives

**Seeing is Believing!**

Once you see Camfil Farr APC dust collectors in action for yourself, you'll understand. Let us bring our traveling display unit to you. Call Camfil Farr APC today for details.



## Testing Capabilities

Farr takes the guesswork out of dust collection.

Camfil Farr APC's goal is to test your dust to make sure you get the best possible dust collection solution for your process.

### Dust Testing

- **Thorough testing and analysis** turn guesswork into **FACTS (Farr Air Cleaning Test System)**.
- **The most complete, state-of-the-art dust collection testing facilities.**
- **Full-scale testing apparatus** utilizing every major category of dust collector.
- **Evaluation** of different media types, filter configurations, filtration velocities, temperatures, airflows and dust loading conditions as needed.
- **Small sample testing results in highly accurate identification of the contaminant. Pinpoint characteristics** including particle size distribution, specific gravity, shape and structure, solubility and hygroscopicity.
- **The end result takes the guesswork out of application design and turns it into a science.**



Camfil Farr APC guarantees our dust collectors to meet applicable local and other current legislation of emission control standards. Whether exhausting outside or recirculating Camfil Farr APC can solve your dust problems.

Dust samples tested

# Send us your dust!





Gold Series units for a laser table manufacturer

## Gold Series®—Customised for Original Equipment Manufacturers (OEM).

Camfil Farr APC can work with any OEM to create a dust collector solution that will fit unique applications.



stainless steel GS2's



GS6's for copper mining



GS8's for dryer manufacturer



# Blasting



GS60 on windmill tower grit blasting

## Blasting

The Camfil Farr APC team has extensive expertise in metal surface preparation applications including wheel blasting, grit/air blasting, shot peening and more. Whether it's light or heavy equipment metal preparation, we have the know-how to clean it up.



GS20 on aluminium shot blasting

# Welding and Grinding



## Welding and Grinding

We place a huge priority on clean air when welding, since weld fume has been linked to a variety of illnesses. When welding stainless steel, toxic hex chrome can be released into the air. Camfil Farr APC has hundreds of installations to clean up weld smoke and grinding dust. Let us help you clean up your factory and show an annual rate of return on your dust system.



GS48 on weld fumes with integral HEPA



GS48 on automotive welding



GSB on parts grinding



# Laser and Plasma Cutting



GS4P ships completely assembled, just plug and play

“We are very happy with the **Farr Gold Series**®. The GS36 was purchased for our CNC plasma cutter to replace a horizontal cartridge dust collector due to short filter life. The current filters have been in for over a year and still look great and are operating at less than 3” pressure drop. Also, the Farr people have been a pleasure to do business with.”

– Dan Schuler, Schuler Mfg.

## Laser and Plasma Cutting

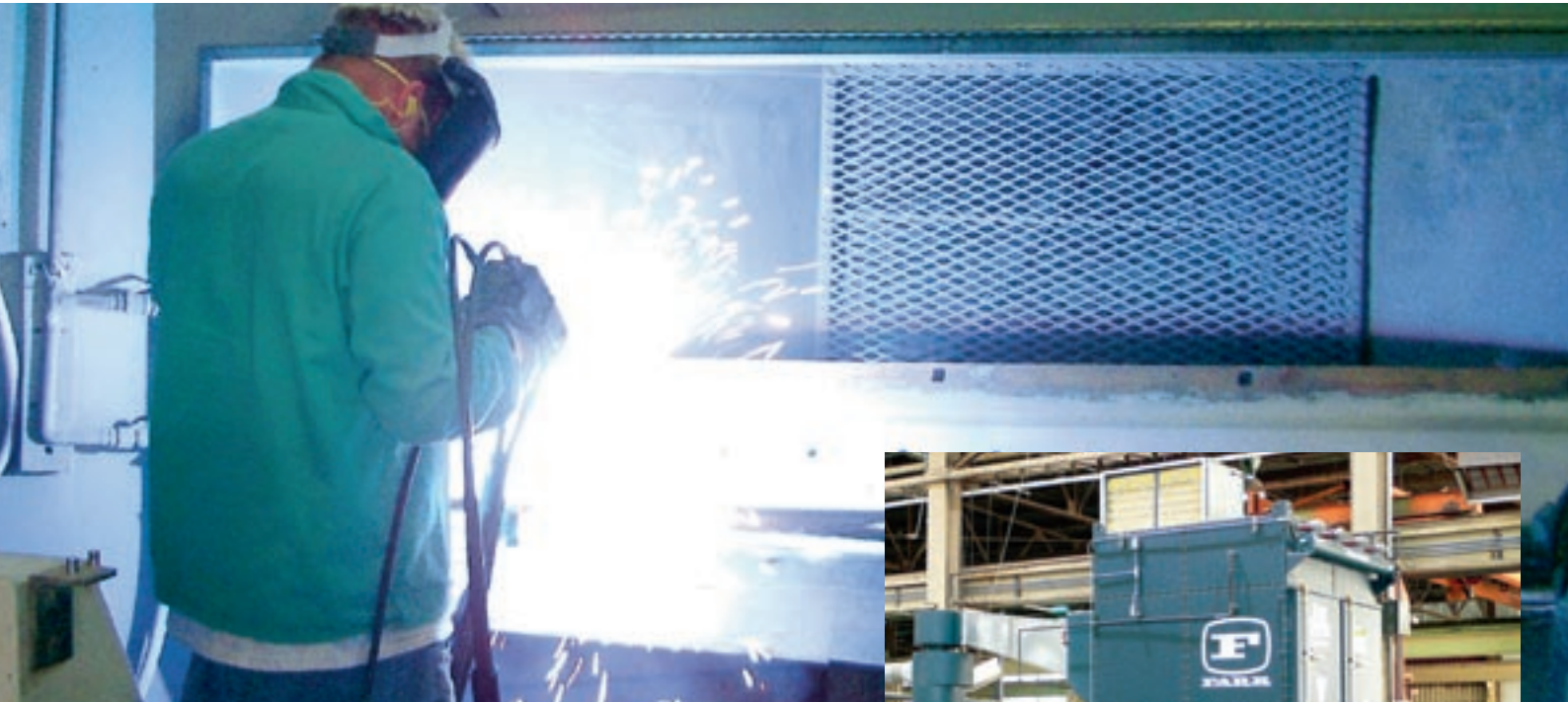
Camfil Farr APC works with a variety of laser and plasma OEM's to supply fume removal systems. Pictured is an Amada laser with a Camfil Farr APC GS4P custom packaged dust collector designed specifically for their table. We can customise to any OEM requirements.



GS4P for Amada laser table



# Thermal/Flame Spray



The Gold Series® cartridge dust and fume collector combines enhanced performance with ease of service while cleaning the work environment of hazardous dust and fumes.



GS16 on zinc arc spray

## Thermal/Flame Spray

### Types of Thermal Sprays:

- Electric Arc Wire (EAW) Spraying
- Powder Spraying
- Electric Arc Spraying
- HVOF
- Plasma Spraying

Because of the various types of thermal spray applications and their effects on the operation of dust collectors, it is important to identify your specific thermal spray operation. Each process involves different shaped and sized particulate along with varying loads. Additionally, strict safety procedures need to be addressed as almost all thermal spray operations can be explosive and/or flammable. Let Camfil Farr APC's expertise in this application help you to put in a safe dust collection system.

“Over the years, we tried several types of dust collection equipment on EWA spraying. However, all previous attempts at extended filter life (more than six months) failed until we installed a high efficiency “Gold Series®” cartridge collection system manufactured by Farr. At the time of this writing, the Gold Series® collector is still performing exceptionally well without a filter change after about a year and a half.”

– David Drozd, Pamarco



Thermal/Flame Spray Before Gold Series® Turned On



Thermal/Flame Spray After Gold Series® Turned On



# Pharmaceutical Compounds



Camfil Farr APC bag-in/bag-out dust collectors extract dust off of tablet coaters like this Spectrum Coater from Thomas Engineering.

## Pharmaceutical Compounds

The Gold Series® (GS) Dust Collector is useful in multiple pharmaceutical dust collection applications including tableting, encapsulation, coating operations, fluid bed and spray dryers, API/HAPI handling, excipients and general ventilation. The GS is perfect where high efficiency filtration is required. Camfil Farr APC offers bag-in/bag-out (BIBO) containment dust collectors to avoid cross-contamination to provide personnel safety during filter changes and waste dust removal.



GS8 BIBO on potent compounds from tablet coating



GS on vitamin manufacturing



Multiple GS dust collectors on tablet coaters



HEPA's after dust collectors





GS24 connected to ST STL hoods below on spice dust collection



GS10 on cereal ingredients

## Food Processing

Companies in the food processing industry take raw agricultural products (such as grains) and turn them into the food products that we eat everyday (like bread and cereal). Dust collection applications can include dried food ingredients from coarse grains to fine spices and additives. Camfil Farr APC has numerous Gold Series® on these applications.



ST STL Side draft hoods for spice weighing





**This large Gold Series® application is on a multiple tablet coater application.**

These GS60's are identical systems—one is in process at all times while the other serves as a ready back up. A dozen horizontal style dust collectors were removed from this vitamin manufacturer, and all airflow was consolidated into one large system outside thereby reducing maintenance and complying with explosion safety issues related to current local legislation.







**Gold  
Series  
F  
FARR**

**GET THE  
GOLD  
STANDARD  
FOR CLEAN FACTORIES**



# Paper Scrap Systems



Paper shredder at a printer

## Paper Scrap Systems

Camfil Farr APC has hundreds of installations for paper trim and scrap handling applications. The Gold Series® is customised to accommodate the fibrous nature of the dust. Typically a cyclone or screen separator drops scrap into a bailer, and the GS filters the exhaust air from the cyclone or separator.



GS16 on printing



Overbags extend filter life



GS108 on corrugated box scrap



“ We were skeptical at first of a cartridge collector on wood dust, we had always used bags. But we have to say that the Gold Series® cartridge collector is working great and has exceeded our expectations.”

– Elvin Hurst Jr., Kountry Kraft Kitchens



## Wood Working

There are several unique features of the Gold Series® that makes it work so well on wood and paper applications.

- The vertical arrangement and wide spacing between the cartridges keep material from bridging between them and blocking the collector.
- Cartridge overbags keep large shavings out of the cartridge pleat while allowing the finer material to pass through to be captured by the filter media.
- One cartridge will replace more than 10 bags when compared to a baghouse.

The Gold Series® has proven itself to work very well on difficult fine wood dust applications. The Gold Series® works on applications where most other dust collectors have failed.



GS16 on wood dust



GS48 on wood finish sanding





## Mining

Camfil Farr APC can help your mine reduce overall emissions, thus allowing you to produce more product. Our GS dust collector has been stack tested at .6864 mg/m<sup>3</sup> emissions on heavy duty rock crushing.



Two GS96's at a nickel mine



GS units on crushing copper ore





Paint pigment



Three GS6's on yellow paint pigment

## Chemical Processing

Gold Series® dust collectors are installed in a wide variety of chemical processing applications. We can send a Camfil Farr APC sales representative to your factory to evaluate your process.



Stainless steel high vacuum (HV) Gold Series®



# Agricultural Seed Processing



Multiple GS dust collectors on corn processing

## Seed Processing

Camfil Farr APC has become an industry leader in seed cleaning, preparation and coating applications. With installations on nearly every continent, we can customise a system to keep your seed plant clean.



Two GS20's on seed cleaning





## Rubber Grinding

Rubber grinding process poses a difficult challenge for dust collectors. Oils can be released from the rubber, blocking most dust collectors. The Camfil Farr APC team has developed a media to get the longest life out of the filters using oil resistant HemiPleat® filters in our Gold Series® dust collectors.



Engine belt



Rubber automotive belt grinding installation



# Fiberglass and GRP



The fiberglass pictured is used in manufacturing the hulls of these boats.

## Fiberglass and GRP

Farr APC has installations in both the fiberglass manufacturing industry and glass reinforced plastic (GRP) finishing industry. Our unique overbag and vertical Gold Cone™ filters enable us to shed the fibrous dust and achieve long filter life.



GS48 on chopped fiberglass



GS48 on chopped fiberglass

The **Gold Series®** uses less duct work to get airflow in and out of the collector than traditional cartridge collectors.



Pictured here is a comparison between similar size Gold Series® collectors and regular cartridge collectors.

## OURS



GS96 on fiberglass

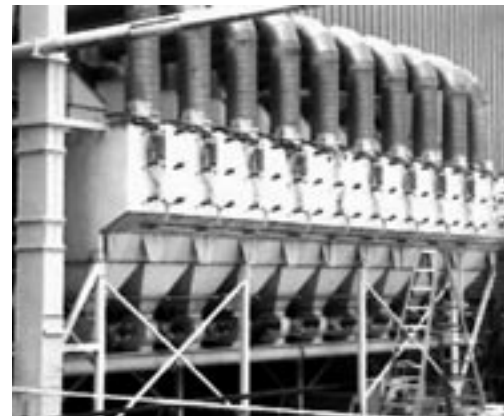


GS48 on fiberglass



GS16 on paper

## THEIRS





# HemiPleat®

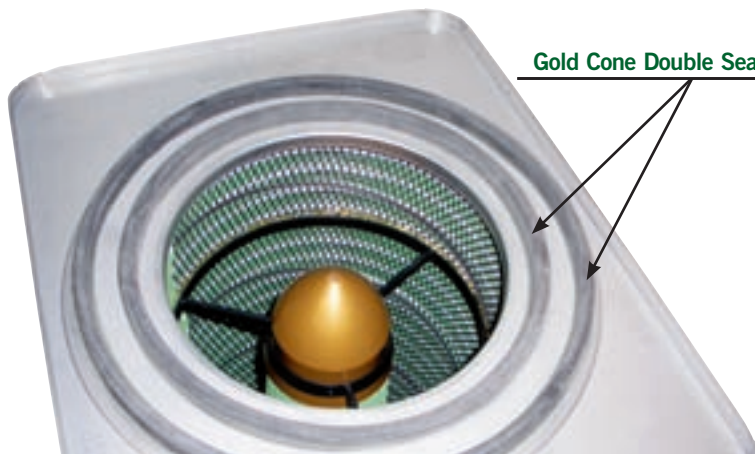
## The Most Advanced Dust Collector Media Ever Made

- Poly-Tech™ media's filtration efficiency is 99.99% on the 0.5 μ and larger particles.
- The Gold Series® meets the local legislation emissions required to recirculate air back on non-hazardous dusts in most cases.
- Poly-Tech™ media is offered with a flame resistant treatment and carbon impregnated for static dissipation.
- Other media options include Dura-Pleat® for sticky dusts and PTFE for the demanding applications.



## Gold Cone™ Cartridge

- Vertically mounted to shed dust readily for efficient cleaning and longer service life.
- Features a cone in the center of the cartridge.
- Cleaning is accomplished by pulse waves that emanate outward also expanding the area of the cartridge.
- Test results indicate that this new pulse distribution method provides enhanced cleaning.
- More efficient operation, longer cartridge life and reduced service requirements.



Gold Cone Double Seal Gasket

### Gold Cone Key Benefits:

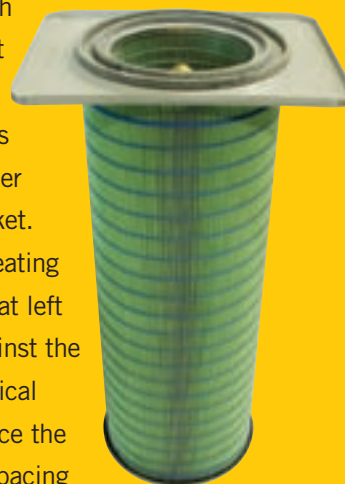
- High filtration efficiency
- Low Pressure Drop
- Long filter life

## HemiPleat® vs. Typical Pleats

No matter which dust collector you have, the HemiPleat® filter can improve its performance. *Guaranteed.*

### Media Comparison

The HemiPleat's high quality uniform pleat pack establishes the superiority of this cartridge over all other products in the market. The difference in pleating quality can be seen at left in a comparison against the media pack with typical industry pleats. Notice the difference in pleat spacing and alignment.



### HemiPleat® Advantages

- Lower pressure drop through open pleat spacing improves cleaning efficiency, which will reduce energy costs through less compressed air consumption during cleaning in many applications.
- More media is available for filtration, for improved performance and longer life.
- The separation beads, not the media pleats, contact the inner cage, protecting the media from frictional damage.

HemiPleat® Breathable Media Pleats

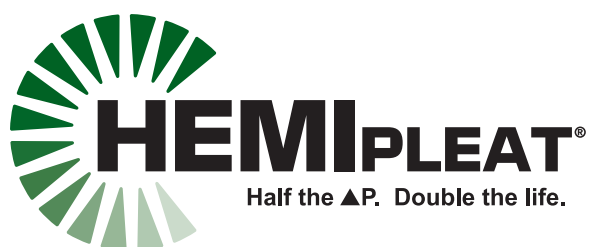
Typical Industry Packed Media Pleats

The HemiPleat® will improve the performance of any cartridge dust collector... guaranteed.



Has this happened to you?

We make filters to fit any of our competition's dust collectors.



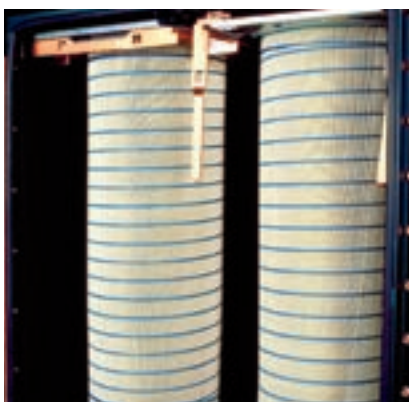
## Replacement Filters

### Gold Cone™ Filters



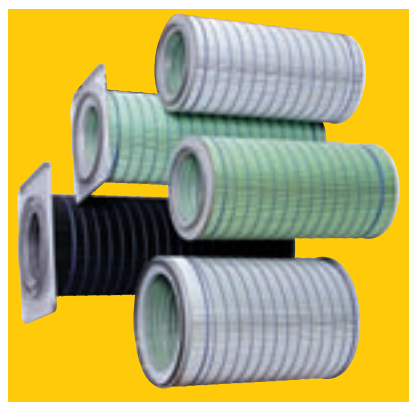
Camfil Farr APC Gold Series® cartridges have an expanded capacity due to the patented inner Gold Cone™. This inner cone increases media area and provides uniform dispersion of back-pulsed air. It also opens up more usable space for air flow in the filter.

### Tenkay® Filters



Tenkay® Filters are replacement elements for aspirated cartridge dust and fume collectors and gas turbine filter houses. Greater media utilisation and more effective filtration provide enhanced performance, longer service life.

### OEM Replacement Filters



Camfil Farr APC can supply its patent pending HemiPleat® technology and high filtration efficiencies to almost any dust collector. Call our filter specialists to see if we can provide longer life and better efficiency for your existing dust collector.



# Heavy-Duty Clean Air Solutions



**Austria**  
Tel: +43 - 1 713 37 83

**Belgium**  
Tel: +32 - 2 705.80.70

**Denmark**  
Tel: +45 - 49 14 44 33

**England**  
Tel: +44 - (0)1706 238 000

**Finland**  
Tel: +358 - 9 8190 380

**France**  
Tel: +33-1 46 52 48 00

**Germany**  
Tel: +49-4533 202-0

**Holland**  
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**Ireland**  
Tel: +353-1 848 49 77

**Italy**  
Tel: +39-02 66 04 89 61

**Norway**  
Tel: +47-23 12 62 00

**Poland**  
Tel: +48 42 655 94 10

**Switzerland**  
Tel: +41-41 754 44 44

**Slovak Republic**  
Tel: +421 36 635 73 56

**Spain**  
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Camfil Farr APC is a proud member of the Camfil Farr Group.



[www.camfilfarrapc.com](http://www.camfilfarrapc.com)

## **APPENDIX F**

Noise Exposure Assessment, Instantaneous Sound Levels and  
Noise Dosimetry, March 16, 2012

DF Barnes Personal Protective Equipment Policy



**NOISE EXPOSURE ASSESSMENT**

**Instantaneous Sound Levels  
and  
Noise Dosimetry**

**Orphan Industries Limited  
and  
Newtech Coatings  
St. John's, NL**

**March 16, 2012**

(Report Submitted: April 27, 2012)

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## EXECUTIVE SUMMARY

Rogers Enterprises Ltd. (REL) was requested by Shane Farrah, HSE Manager, DFB Driver Inc., to conduct a Noise Exposure Assessment at Orphan Industries Limited and Newtech Coatings, divisions of DFB Group, located on Pepperrell Road, St. John's, Newfoundland. As such, REL conducted an instantaneous sound level survey and personal noise dosimetry monitoring on March 16, 2012.

The purpose of conducting the instantaneous sound level survey was to identify those areas with sound levels above 85 decibels (dBA), the legislated standard for an eight-hour work shift. The purpose of conducting the personal dosimetry monitoring was to gather information on full-shift occupational noise exposure for individual employees while performing regular work activities. The results were then compared to the legislated noise exposure standards, as adopted from the American Conference of Governmental Industrial Hygienists (ACGIH), to determine whether the occupational exposure to noise was within the legislated standard.

Instantaneous sound level measurements were taken throughout the two facilities under various operating conditions. The instantaneous sound level measurements indicated that sound levels exceeded 85 dBA when operating various pieces of equipment. As shown in **Table 1, Section 7.0** of this report, sound levels above 85 dBA were recorded at Orphan Industries when operating the propane fire torch, paging system (microphone), pencil grinder, arc welder, electric Dewalt grinder, American Hole Wizard radial arm drill, pedestal grinder, bench grinder, Bomar band saw, boring mill, Shear Maxima, and Piranha. Moreover, recorded sound levels exceeded 100 dBA while arc/air gouging. As shown in **Table 2, Section 7.0** of this report, sound level readings above 85 dBA were recorded at Newtech Coatings when operating the air sander.

Personal noise dosimetry was conducted on five (5) employees working at Orphan Industries Limited: one (1) Pipefitter, one (1) Machinist Foreman and three (3) Welders, and on one (1) Painter working at Newtech Coatings. The personal noise dosimetry results indicated that all six (6) workers tested were exposed to time weighted averages (TWA's) exceeding 85 dBA, which is the criterion for an eight-hour exposure duration. The five (5) employees at Orphan Industries had TWA's ranging from 86.6 dBA to 100 dBA. The painter at Newtech Coatings had a TWA of 87.1 dBA.

Based on the findings of the noise exposure assessment, the following recommendations are made:

1. Until current noise exposure levels can be reduced, workers entering and/or working in areas with noise levels above 85 dBA should wear hearing protection of a sufficient noise reduction rating (NRR) to reduce noise exposure below 85 dBA.
2. Workers entering and/or working in areas with noise levels above 100 dBA should wear dual hearing protection (plugs and muffs) of a sufficient noise reduction rating to reduce noise exposure below 85 dBA, or worker exposure time should be reduced.

3. Where noise levels exceed 85 dBA, warnings in the form of signage should indicate the need to wear hearing protection.
4. Where noise levels exceed 100 dBA, warnings in the form of signage should indicate the need to wear dual hearing protection (plugs and muffs).
5. On the day of sampling, there was no sandblasting taking place at Newtech Coatings. Personal noise dosimetry monitoring should be conducted on the sandblaster to determine the TWA noise exposure level for this worker.
6. A Hearing Conservation Program should be developed and implemented, and should include the following:
  - Development, implementation and posting of a Hearing Protection Policy.
  - Periodic testing and documentation of sound levels and personal noise dosimetry.
  - Completion of a baseline audiometric testing program for all employees, followed by annual audiometric testing.
  - A review of existing engineering and administrative controls.
  - Training of all employees in the proper use of hearing protection. Workers should be trained to ensure that earplugs are inserted as per the manufacturer's instructions to receive the maximum Noise Reduction Rating (NRR).
  - Mandatory use of hearing protection in all areas with noise levels above 85 dBA.
  - Written documentation on all sound level surveys, personal noise dosimetry results, audiometric testing, employee training, and changes to noise control measures.
  - Maintenance (periodic review/revision) and enforcement of the Hearing Conservation Program.

## 1.0 INTRODUCTION

Rogers Enterprises Ltd. (REL) was requested by Shane Farrah, HSE Manager, DFB Driver Inc., to conduct a Noise Exposure Assessment at Orphan Industries Limited and Newtech Coatings, divisions of DFB Group, located on Pepperrell Road, St. John's, Newfoundland. As such, REL conducted an instantaneous sound level survey and personal noise dosimetry monitoring on March 16, 2012. The assessment was conducted by Kristen Lockyer and Stephen Tapp, Health and Safety Consultants for REL.

The assessment was conducted in an attempt to capture data that would be representative of both the working conditions and the employees' personal exposure to noise at the time of the assessment. This report contains the findings of the noise exposure assessment and makes recommendations to assist in controlling occupational concerns.

## 2.0 BACKGROUND INFORMATION

DFB Group is a privately-held corporation that is Newfoundland and Labrador owned and operated. It is involved in fabricating, manufacturing, repairing and servicing offshore marine and industrial equipment. It began as a small welding shop in 1931 and has developed into an integrated and globally-focused entity. DFB Group is currently comprised of five strategic businesses: D.F. Barnes Services Ltd., Orphan Industries Limited, GEO Installations Inc., Extreme East Rigging Services Ltd., and DFB Driver Inc.

Orphan Industries Limited is located at 45 Pepperrell Road, St. John's, Newfoundland and includes a fabrication and production area, as well as a machine shop for carbon and specialty steel products. The two inside walls are soundproofed to reduce the noise levels at the facility, and the other two walls and ceiling are insulated. There are three large garage doors and one large sliding door located at the ends of the building. These doors were opened periodically throughout the assessment. The facility is approximately 20,000 square feet in size with over five acres of secure, fenced lay-down space.

DFB Group also operates a painting and sandblasting facility (in two separate buildings) called Newtech Coatings, located at 35 Pepperrell Road, St. John's, Newfoundland. Newtech Coatings provides sandblasting, coating, painting and baking services. The painting facility is approximately 7500 square feet in size, and the inside of the facility has been sprayed with an insulating material.

Once the facilities on Pepperrell Road receive an order from a customer, it was reported that the following process is performed: product is fabricated in the cutting area; product is then prepared (grinded), fitted, welded, sandblasted, and painted. Once the process is completed, it is ready to be shipped to the customer.

The facilities employ approximately 45 people. Orphan Industries operates on both a dayshift and nightshift. Dayshift workers work Monday to Friday from 8:00 am to 4:30 pm (i.e. five 8-

hour shifts). They take a 15-minute break in the morning and in the afternoon and a half-hour break at lunchtime. Nightshift workers work Monday to Thursday from 4:30 pm to 3:00 am (i.e. four 10-hour shifts). Employees at Newtech Coatings generally work Monday to Friday from 8:00 am to 4:30 pm. Workers may work extra hours on the weekend if work demand is high.

### **3.0 PURPOSE OF ASSESSMENT**

The purpose of conducting the instantaneous sound level survey was to identify those areas with sound levels above 85.0 decibels (dBA), the standard for an eight-hour work shift. The purpose of conducting the personal noise dosimetry monitoring was to gather information on occupational noise exposure for individual employees while performing regular work activities. The results were then compared to the legislated noise exposure standards, as adopted from the American Conference of Governmental Industrial Hygienists (ACGIH), to determine whether the occupational exposure to noise was within the legislated standard.

### **4.0 SCOPE OF ASSESSMENT AND SAMPLING METHODOLOGY**

#### **4.1 Instantaneous Sound Level Readings**

Instantaneous sound level measurements were taken throughout the two facilities under various operating conditions using an Edge noise monitor (serial # EHH010054). The noise monitor was calibrated before and after the sound level survey using a Quest QC-10 calibrator. Instantaneous sound level readings were recorded at the noise source, at various distances from the noise source, and at work stations. The readings were taken at levels approximately 1.5 metres above the floor to represent exposure levels for a worker standing in the general area.

#### **4.2 Personal Noise Dosimetry Monitoring**

Personal noise dosimetry monitoring was conducted using six (6) Quest NoisePro Series noise dosimeters (serial #'s NLH010089, NLJ020182, NLH110018, NLH010087, NLH110017 and NLH010088). The dosimeters were calibrated before and after the personal noise dosimetry monitoring using a Quest QC-10 calibrator. The dosimeters were used to assess the time weighted exposure for employees working at Orphan Industries Limited and Newtech Coatings. The dosimeters were set for slow meter response on the A-weighted scale and set at a criterion level of 85 dBA, with a 3 dBA exchange rate. A 60 dBA threshold level was used to include all sound levels exceeding 60 dBA.

The dosimeters provide the measured time weighted average (TWA), projected time weighted average (Projected TWA), and the average sound level (Lavg) exposures over the sampling period. They also provide the maximum exposure level (Lpk) of the employees for the work shift.

### 4.3 Definition of Noise Terms

The following is a list of noise terms associated with the noise monitors used in this assessment:

**Criterion Level** – is expressed in decibels (dBA). It is the maximum allowable accumulated noise level that results in 100% dose.

**Dose** – is expressed in percent. It is the % of the maximum exposure that has accumulated in the run time. 100% is the maximum allowable exposure.

**Exchange Rate** – also known as the doubling rate, the exchange rate refers to how the sound energy is averaged over time. Using the decibel scale, every time the sound energy doubles, the measured level increases by 3 dB. Also, for every increase of 3 dB in the time weighted average, the measured dose would double.

**Equivalent Sound Level (Leq)** – is the average sound level measured over the run time, but is calculated with a 3 dBA exchange rate and no threshold. It is also referenced as the **Lavg** (average sound level).

**Maximum Level** – is the highest weighted sound level that occurred, also allowing for the response time to which the meter is set.

**Minimum Level** – is the minimum sound pressure level over the measurement interval.

**Peak Level (Lpk)** – is the highest instantaneous and unweighted level that occurred during the run time.

**Time Weighted Average (TWA)** – takes the noise exposure accumulated in the run time and applies an eight-hour time period. If the measurement period was more or less than eight hours, the instrument would estimate the TWA eight-hour exposure based on the same interval.

## **5.0 APPLICABLE GUIDELINES / LEGISLATION**

Orphan Industries Limited and Newtech Coatings are subject to the legislative requirements of the Newfoundland and Labrador Occupational Health and Safety (OH&S) Act and Regulations. As such, worker exposure limits for industrial noise are based on the Threshold Limit Values (TLVs) established by the American Conference of Governmental Industrial Hygienists (ACGIH). The ACGIH has established a TLV of 85 decibels (dBA) over an eight-hour exposure duration, with a three (3) dBA exchange rate. Therefore, each three (3) dBA increase in noise levels results in the exposure duration being reduced by half (50%) if the worker is not wearing hearing protection, (as outlined in the table in **Appendix A**). For example, a noise exposure level of 88 dBA means a person can only be exposed for up to four hours (when not wearing hearing protection).

In the event noise exposure levels exceed the ACGIH TLVs, action must be taken, including the use of engineering controls, to reduce exposure levels below the TLVs. Should engineering controls be ineffective and/or impractical, personal worker exposure can be controlled using administrative controls or personal protective equipment. Therefore, compliance with the legislative requirements means that noise exposure must be reduced below 85 dBA (for an eight-hour time period) using either engineering controls (reduce noise level generated by the source), wearing hearing protection (reduce noise level reaching the worker's inner ear), or reducing the exposure duration (shortened work shift to reduce noise level reaching the worker's inner ear).



## 6.0 NOISE – PHYSICAL CHARACTERISTICS AND SOURCES

Noise is a form of vibration (unwanted sound) that is conducted and/or transmitted through solids, liquids or gases. It interferes with the perception of wanted (acceptable) sound and can be physically, biologically and physiologically harmful to workers in the workplace. Noise levels within the workplace are generally more intense and sustained than any noise levels experienced outside the workplace. Early recognition and evaluation of noise sources, combined with the incorporation of control measures and legislative compliance, ensure that employee exposure to these high noise levels are controlled / eliminated, or at the very least, reduced to levels as low as reasonably practicable (ALARP).

### 6.1 Noise Reduction Rating

The Noise Reduction Rating (NRR) is a standard measure of the sound-blocking abilities of any hearing protective device. The NRR is provided by the manufacturer of hearing protection to assist the user in determining the most appropriate level of protection required in a particular work area. The higher the NRR, the greater the protection it can provide when properly used. Therefore, when using the NRR, it is necessary to know the noise level in the work area for which the hearing protection is required and the maximum safe noise level at the worker's ear. The NRR is based on laboratory test data provided by the manufacturer.

There are several reasons why hearing protectors can fail to provide adequate protection in real-world situations: discomfort, incorrect use with other safety equipment, dislodging, deterioration, and abuse. To compensate for known differences between laboratory derived attenuation values and the protection obtained by a worker in the real world, the National Institute for Occupational Safety and Health (NIOSH) recommends that the manufacturer's labeled noise reduction ratings (NRRs) be de-rated as follows:

Earmuffs	Subtract 25% from the manufacturer's labeled NRR
Formable earplugs	Subtract 50% from the manufacturer's labeled NRR
All other earplugs	Subtract 70% from the manufacturers labeled NRR

For exposure to noise levels at or above 100 decibels (dBA), NIOSH recommends dual protection, the combination of earplugs and muffs. It is important to note that using such double protection will add only 5 to 10 dB of attenuation (Nixon and Berger, 1991). NIOSH cautions that even double hearing protection may not provide complete protection when time weighted average (TWA) exposures exceed 105 decibels (dBA). Even with double hearing protection, the worker's exposure level may still exceed 85 decibels (dBA), the ACGIH criterion for an eight-hour exposure duration. In these situations, the worker's exposure time should be reduced in accordance with the ACGIH table, as presented in **Appendix A**.

## 6.2 Hearing Protection Criteria

The following table is based on recommendations outlined in CSA Standard Z94.2-02, Hearing Protection Devices – Performance, Selection, Care and Use.

<b>Equivalent Noise Level 8-Hour Work Shift</b>	<b>Class of Hearing Protector</b>
<b>Decibels (dBA)</b>	<b>Recommended Hearing Protection</b>
< 85.0	No Protection Required
> 85.0 & < 95.0	Class A or B (Earplug or Earmuff)
> 95.0 & < 105.0	Class A (Earplug or Earmuffs)
> 105.0	Class A Earplug + Class B Earmuffs*
> 110.0	Class A Earplug + Class A Earmuffs**

\* Dual hearing protection is required. A minimum of a Class A earplug plus a Class B earmuff.

\*\* Dual hearing protection is required and limited exposure is recommended.

Classification of hearing protectors as Class A, B or C is based on the highest level of attenuation at various assigned frequencies. Class A provides the highest level of attenuation across the test frequencies; Class B provides the next highest level of attenuation; and Class C provides the least attenuation (virtually no attenuation below 500 Hz).

CSA Standard Z94.2-02 recommends the use of dual hearing protection at or above 105 dBA. However, to account for real world attenuation factors such as poor fit, lack of proper training, and inadequate motivation of users, other industry standards recommend the use of dual hearing protection at or above 100 dBA.

## 7.0 ASSESSMENT FINDINGS AND DISCUSSION

The findings of the noise exposure assessment conducted at Orphan Industries Limited and Newtech Coatings on March 16, 2012 are presented and discussed below.

### 7.1 Instantaneous Sound Level Measurements

Instantaneous sound level measurements were taken under various operating conditions to determine whether sound levels within the facilities exceeded the ACGIH TLV of 85 dBA. The instantaneous sound level measurements recorded are outlined in Table 1 and Table 2 below.

**Table 1**  
**Orphan Industries Limited**  
**Instantaneous Sound Level Readings**  
**March 16, 2012**

Location / Equipment	Test Conditions	Sound Level Reading (dBA)
Background Noise (Welding Area)	Taken near the exit door	70.1
Background Noise (Tool Crib)	No work activity	63.1
Background Noise (Pipefitting Area)	No work activity	65.4 – 65.9
Background Noise (Machine Shop)	No work activity	64.8
Background Noise (Office – Machine Shop)	One employee at desk	63.1
Propane Fire Torch	Melting ice from steel cage	82.9 – 88.3
Paging System (Microphone)	Approximately 20 feet away (welding area)	89.2
	Approximately 10 feet away (welding shop)	97.1
	Approximately 60 feet away (machine shop)	93.5
Pencil Grinder	Grinding base unit	87.3 – 90.2
Welding	Flux core	77.9 – 80.1
	Arc welding	84.3 – 85.6
Electric Dewalt Grinder	Grinding steel	84.7 – 95.2
Colchester Lathe	Milling steel	72.0 – 79.0
American Hole Wizard Radial Arm Drill	Drilling steel	80.9 – 86.4
Pedestal Grinder	Grinding plyers	81.1 – 85.7
Bench Grinder	Grinding a metal bolt	82.0 – 92.7
Oxygen /Acetylene Cutting	Cutting 10 mm angle iron	76.6 – 80.5

Location / Equipment	Test Conditions	Sound Level Reading (dBA)
Drill Press	Drilling ½ inch steel	71.9 – 73.5
Bomar Band Saw	3 inch by 3 inch by ¼ inch thick angle iron	76.4 – 86.3
Colvis Lathe	Milling steel	79.3 – 83.5
Boring Mill	Idling – no material being fabricated	77.1 – 89.2
Concept Band Saw	Idling – no material being fabricated	73.9 – 75.2
Trens Lathe	Idling – no material being fabricated	75.4 – 76.4
Shear Maxima	Cutting ¼ inch stainless steel	74.4 – 88.8
Bending Rolls	Idling – no material being fabricated	68.7 – 71.7
Piranha	Fabricating steel	72.5 – 88.4
Arc/Air Gouging	Taken approximately four feet behind the worker's ear.	93.6 – 100.3

**Legend:** Numbers highlighted in yellow indicate noise levels exceeded 85 dBA  
Numbers highlighted in black indicate noise levels exceeded 100 dBA

**Table 2**  
**Newtech Coatings**  
**Instantaneous Sound Level Readings**  
**March 16, 2012**

Location / Equipment	Test Conditions	Sound Level Reading (dBA)
Background Noise (Paint Facility)	Radio and fan running (outside painting booth)	63.1 – 65.3
Background Noise (Paint Facility)	Radio and ventilation system running (outside painting booth)	70.7
Inside Paint Booth (Paint Facility)	Ventilation system running, no employees inside	83.9 – 84.2
Air Sander (Paint Facility)	Outside painting booth (sanding a dump truck open-box bed)	87.6 – 88.5

**Legend:** Numbers highlighted in yellow indicate noise levels exceeded 85 dBA

As outlined in Table 1, noise levels were recorded above 85 dBA at Orphan Industries when operating the following equipment:

- Propane Fire Torch
- Paging System (microphone)
- Pencil grinder
- Arc welder

- Electric Dewalt grinder
- American Hole Wizard radial arm drill
- Pedestal grinder
- Bench grinder
- Bomar band saw
- Boring mill
- Shear Maxima
- Piranha

As outlined in **Table 2**, noise levels were recorded above 85 dBA at Newtech Coatings when operating the following piece of equipment:

- Air Sander

It should be noted that the noise level inside the paint booth (with the ventilation system running) was close to the legislated standard of 85 dBA, with a reading of 84.2 dBA.

Based on the sound level readings, it is determined that employees working at Orphan Industries Limited and Newtech Coatings are exposed to noise levels that exceed 85 dBA, the eight-hour exposure duration, when operating various types of equipment. When operating such equipment, single hearing protection (earplugs or earmuffs) should be worn; (reference **Section 6.2** of this report, **Hearing Protection Criteria**).

Moreover, it is determined that while arc/air gouging, employees at Orphan Industries are exposed to noise levels that exceed 100 dBA, indicating that dual hearing protection (earplugs and earmuffs) should be worn or worker exposure times should be adjusted; (reference **Section 6.2** of this report, **Hearing Protection Criteria**).

## 7.2 Personal Noise Dosimetry Monitoring

Personal noise dosimetry monitoring was conducted on five (5) employees at Orphan Industries Limited and one (1) employee at Newtech Coatings to determine full-shift exposure to occupational noise while the employees performed their regular duties. The results are presented below.

### Orphan Industries Limited - Pipefitter

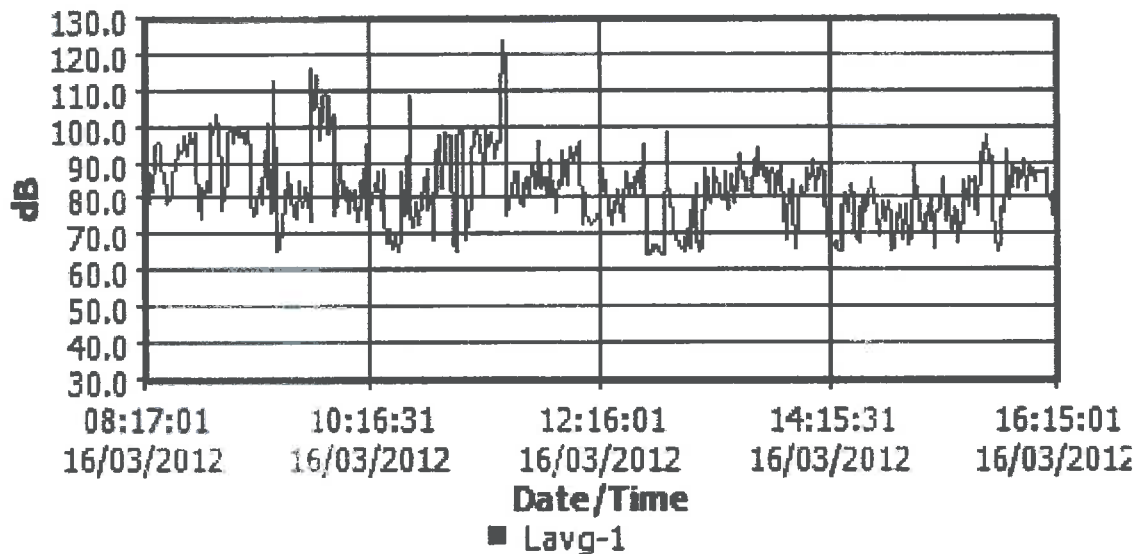
#### Information Panel

Name	Pipefitter
Comments	
Start Time	March-16-12 08:17:01
Stop Time	March-16-12 16:15:20
Location	
Parent Session	NLH010089_1632012_081701 Orphan
User Name	

#### General Data Panel

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Dose	1	3234.6 %	Lpk	--	145.3 dB
PKtime	--	16/03/2012 11:25:56 AM	Pdose	1	3246 %
Lavg	1	100.1 dB	TWA	1	100 dB
Rtime	1	07:58:19	ULtime	1	00:00:00
SEL	1	144.6 dB	Projected TWA	1	100.1 dB
Exchange Rate	1	3 dB	Response	1	SLOW
Weighting	1	A	Log Rate	--	60 s
Criterion Level	1	85 dB	Criterion Time	1	8 hrs.

#### Logged Data Chart



Noise dosimeter # NLH010089 ran for a total sampling period of seven hours and 58 minutes on a Pipefitter, giving a time weighted average of 100 dBA, which exceeds the eight-hour TLV-TWA of 85 dBA. The worker was hammering and grinding with a one-quarter inch grinding disk in the morning and grinding with a flapper disk in the afternoon. The employee was wearing hearing protection at the time of the assessment.

## Orphan Industries Limited - Machinist Foreman

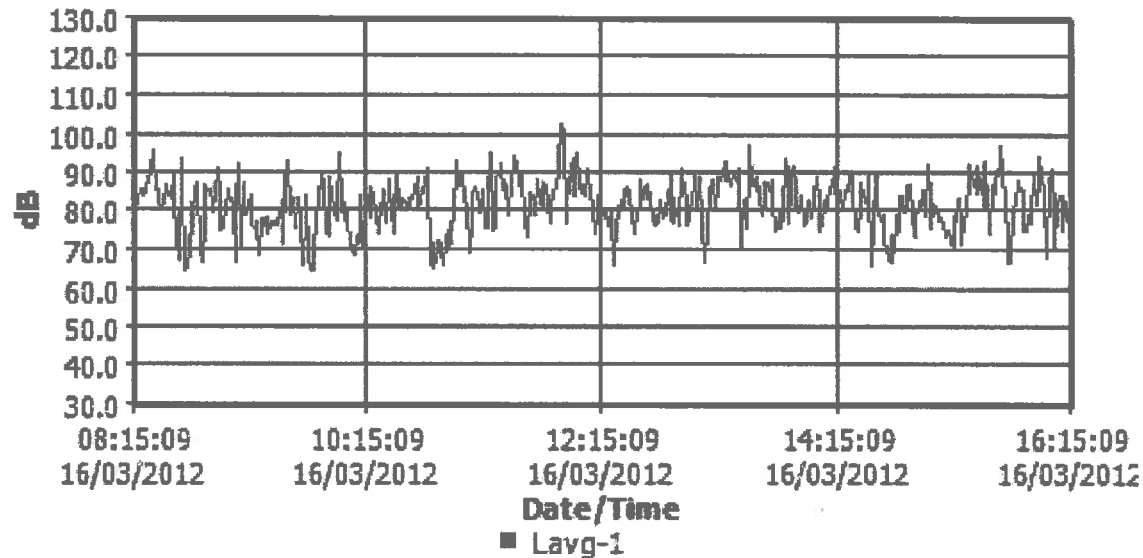
### Information Panel

**Name** Machinest Foreman  
**Comments**  
**Start Time** March-16-12 08:15:09  
**Stop Time** March-16-12 16:15:22  
**Location**  
**Parent Session** NLJ020182\_1632012\_081509 Orphan  
**User Name**

### General Data Panel

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Dose	1	145 %	Lpk	-	137.7 dB
PKtime	-	16/03/2012 11:55:24 AM	Pdose	1	144.9 %
TWA	1	86.6 dB	Lavg	1	86.6 dB
Rtime	1	08:00:13	ULtime	1	00:00:00
SEL	1	131.2 dB	Exchange Rate	1	3 dB
Response	1	SLOW	Weighting	1	A
Log Rate	-	60 s	Criterion Level	1	85 dB
Criterion Time	1	8 hrs.			

### Logged Data Chart



Noise dosimeter # NLJ020182 ran for a total sampling period of eight hours on a Machinist Foreman, giving a time weighted average of 86.6 dBA, which exceeds the eight-hour TLV-TWA of 85 dBA. The employee was not wearing hearing protection at the time of the assessment.

## Orphan Industries Limited - Welder (AD)

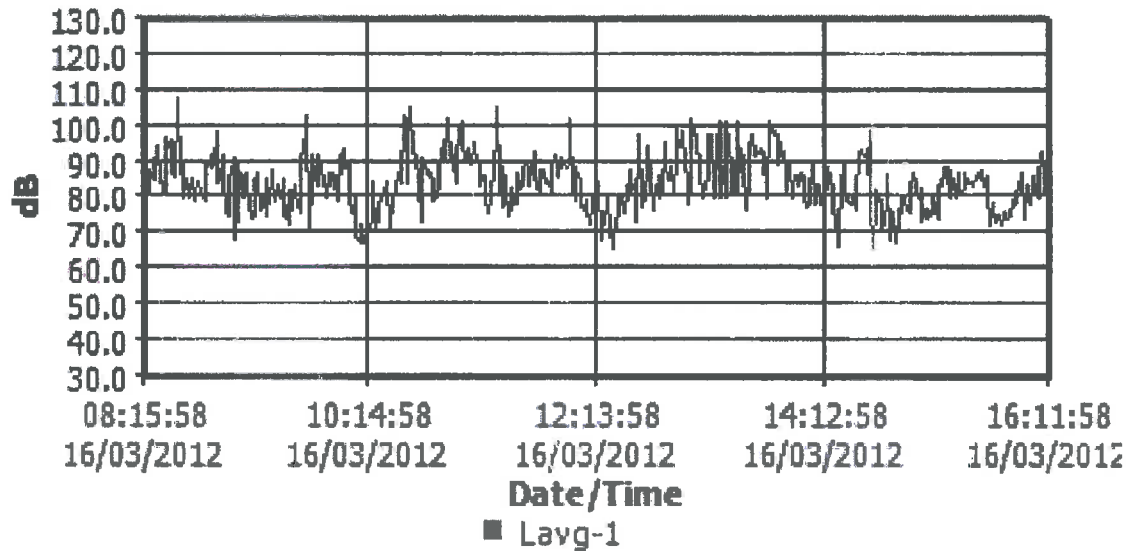
### Information Panel

Name Welder - AD  
 Comments  
 Start Time March-16-12 08:15:58  
 Stop Time March-16-12 16:12:45  
 Location  
 Parent Session NLH110018\_1632012\_081558 Orphan  
 User Name

### General Data Panel

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Dose	1	450.8 %	Lpk	--	144.3 dB
PKtime	--	16/03/2012 10:43:37 AM	Pdose	1	453.8 %
Lavg	1	91.5 dB	TWA	1	91.5 dB
Rtime	1	07:56:47	ULtime	1	00:00:00
SEL	1	136.1 dB	Projected TWA	1	91.5 dB
Exchange Rate	1	3 dB	Response	1	SLOW
Weighting	1	A	Log Rate	--	60 s
Criterion Level	1	85 dB	Criterion Time	1	8 hrs.

### Logged Data Chart



Noise dosimeter # NLH110018 ran for a total sampling period of seven hours and 56 minutes on a Welder, giving a time weighted average of 91.5 dBA, which exceeds the eight-hour TLV-TWA of 85 dBA. The employee was not wearing hearing protection at the time of the assessment.



## Orphan Industries Limited - Welder (BS)

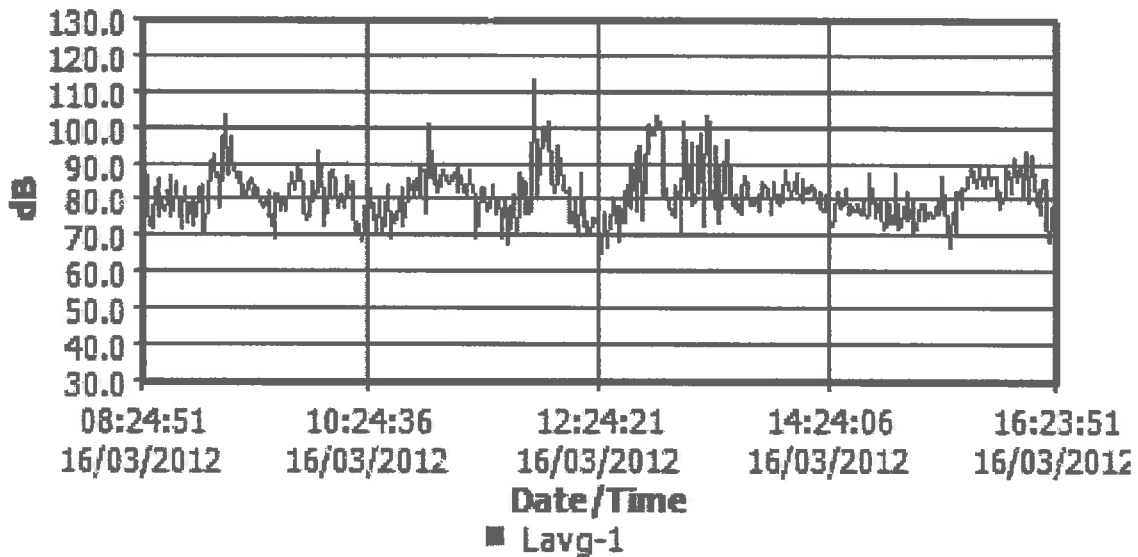
### Information Panel

**Name** Welder - BS  
**Comments**  
**Start Time** March-16-12 08:24:51  
**Stop Time** March-16-12 16:24:21  
**Location**  
**Parent Session** NLH010087\_1632012\_082451Orphan  
**User Name**

### General Data Panel

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Dose	1	415.7 %	Lpk	—	145.3 dB
PKtime	—	16/03/2012 11:50:42 AM	Pdose	1	416.2 %
Lavg	1	91.1 dB	TWA	1	91.1 dB
Rtime	1	07:59:30	ULtime	1	00:00:00
SEL	1	135.7 dB	Projected TWA	1	91.1 dB
Exchange Rate	1	3 dB	Response	1	SLOW
Weighting	1	A	Log Rate	—	60 s
Criterion Level	1	85 dB	Criterion Time	1	8 hrs.

### Logged Data Chart



Noise dosimeter # NLH010087 ran for a total sampling period of seven hours and 59 minutes on a Welder, giving a time weighted average of 91.1dBA, which exceeds the eight-hour TLV-TWA of 85 dBA. The employee was not wearing hearing protection at the time of the assessment.

## Orphan Industries Limited - Welder (AS)

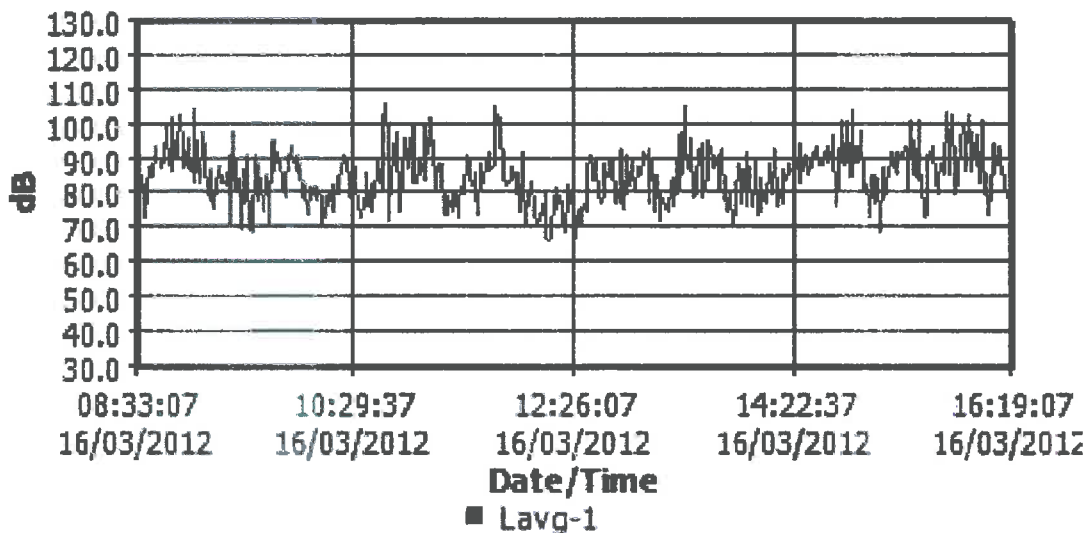
### Information Panel

**Name** Welder - AS  
**Comments**  
**Start Time** March-16-12 08:33:07  
**Stop Time** March-16-12 16:19:59  
**Location**  
**Parent Session** NLH110017\_1632012\_083307 Orphan  
**User Name**

### General Data Panel

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Dose	1	478.4 %	Lpk	—	145 dB
PKtime	—	16/03/2012 11:10:21 AM	Pdose	1	491.9 %
Lavg	1	91.9 dB	TWA	1	91.7 dB
Rtime	1	07:46:52	ULtime	1	00:00:00
SEL	1	136.3 dB	Projected TWA	1	91.9 dB
Exchange Rate	1	3 dB	Response	1	SLOW
Weighting	1	A	Log Rate	—	60 s
Criterion Level	1	85 dB	Criterion Time	1	8 hrs.

### Logged Data Chart



Noise dosimeter # NLH110017 ran for a total sampling period of seven hours and 46 minutes on a Welder, giving a time weighted average of 91.7 dBA, which exceeds the eight-hour TLV-TWA of 85 dBA. The employee was wearing hearing protection at the time of the assessment.

## Newtech Coatings - Painter

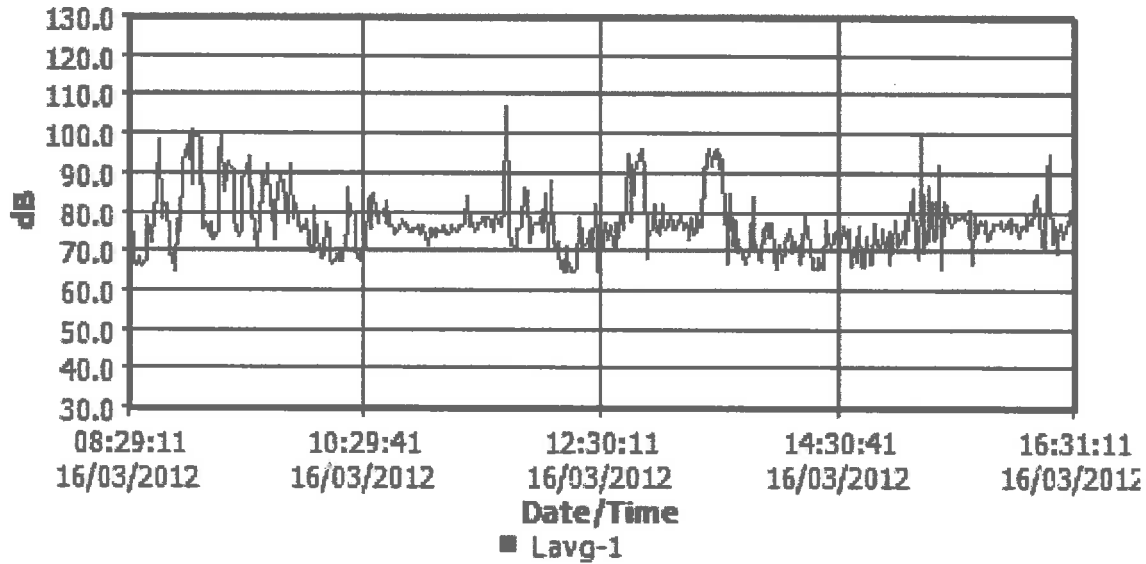
### Information Panel

Name Painter  
 Comments  
 Start Time March-16-12 08:29:11  
 Stop Time March-16-12 16:31:31  
 Location  
 Parent Session NLH010088\_1632012\_082911 Newtech Coatings  
 User Name

### General Data Panel

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Dose	1	163.2 %	Lpk	--	143.2 dB
PKtime	--	16/03/2012 11:41:32 AM	Pdose	1	162.4 %
Lavg	1	87.1 dB	TWA	1	87.1 dB
Rtime	1	08:02:20	ULtime	1	00:00:00
SEL	1	131.7 dB	Projected TWA	1	87.1 dB
Exchange Rate	1	3 dB	Response	1	SLOW
Weighting	1	A	Log Rate	--	60 s
Criterion Level	1	85 dB	Criterion Time	1	8 hrs.

### Logged Data Chart



Noise dosimeter # NLH010088 ran for a total sampling period of eight hours and two minutes on a Painter, giving a time weighted average of 87.1 dBA, which exceeds the eight-hour TLV-TWA of 85 dBA. The employee was not wearing hearing protection at the time of the assessment.

The sampling results for the noise dosimetry monitoring indicate that all six (6) workers sampled were exposed to time weighted averages (TWAs) exceeding the legislated standard of 85 dBA, which is the criterion for an eight-hour exposure duration, with results ranging from 86.6 dBA to 100 dBA for the workers at Orphan Industries and a result of 87.1 dBA for the painter working at Newtech Coatings.

### 7.3 Site Observations / Additional Information

At the time of the noise exposure assessment, information was obtained and observations were made at Orphan Industries Limited and Newtech Coatings. As such, the following was noted:

1. Hearing protection, in the form of earplugs, is provided to all employees and visitors. However, at the time of the assessment, only two workers out of the six sampled were observed wearing hearing protection while working.
2. On the day of the assessment, the workers were working an eight-hour shift. Therefore, this report is based on an eight-hour work day. The nightshift workers work a 10-hour shift. It was also indicated that employees sometimes work extended shifts to meet demand requirements. For extended work shifts longer than eight hours, the TLV-TWA for noise exposure would have to be adjusted to account for the extra period of worker exposure.
3. The type of fabricating equipment being used on a given day depends on the work demand for that particular day. Therefore, during some work days, noise exposure may be higher than other work days, depending on the type of equipment that is being operated.
4. During the assessment, the Torchmate plasma table was not being operated. As such, no instantaneous readings were taken on this piece of equipment. Some other pieces of equipment that were not being used during the day were able to be started up to obtain instantaneous readings. The readings from these pieces of equipment were taken while the equipment was idling (i.e. no material was being fabricated).
5. On the day of the assessment there was no sandblasting at Newtech Coatings. Therefore, no personal noise dosimetry monitoring was conducted on the sandblaster.
6. There was no signage posted in the facility indicating "Hearing Protection Required".
7. Currently there is no Hearing Conservation Program in place, but workers do receive training on hearing protection during toolbox meetings and during employee orientation.

## **8.0 RECOMMENDATIONS**

Based on the findings of the noise exposure assessment, the following recommendations are made:

1. Until current noise levels can be reduced, workers entering and/or working in areas with noise levels above 85 dBA should wear hearing protection of a sufficient noise reduction rating (NRR) to reduce noise exposure below 85 dBA.
2. Workers entering and/or working in areas with noise levels above 100 dBA should wear dual hearing protection (plugs and muffs) of a sufficient noise reduction rating to reduce noise exposure below 85 dBA, or worker exposure time should be reduced.
3. Where noise levels exceed 85 dBA, warnings in the form of signage should indicate the need to wear hearing protection.
4. Where noise levels exceed 100 dBA, warnings in the form of signage should indicate the need to wear dual hearing protection (plugs and muffs).
5. On the day of sampling, there was no sandblasting taking place at Newtech Coatings. Personal noise dosimetry monitoring should be conducted on the sandblaster to determine the TWA noise exposure level for this worker.
6. A Hearing Conservation Program should be developed and implemented, and should include the following:
  - Development, implementation and posting of a Hearing Protection Policy.
  - Periodic testing and documentation of sound levels and personal noise dosimetry.
  - Completion of a baseline audiometric testing program for all employees, followed by annual audiometric testing.
  - A review of existing engineering and administrative controls.
  - Training of all employees in the proper use of hearing protection. Workers should be trained to ensure that earplugs are inserted as per the manufacturer's instructions to receive the maximum Noise Reduction Rating (NRR).
  - Mandatory use of hearing protection in all areas with noise levels above 85 dBA.
  - Written documentation on all sound level surveys, personal noise dosimetry results, audiometric testing, employee training, and changes to noise control measures.



- Maintenance (periodic review/revision) and enforcement of the Hearing Conservation Program.

## 9.0 CONCLUSION

According to the results of the noise exposure assessment, it can be concluded that without the use of hearing protection, there is potential for workers to develop occupational noise-induced hearing loss due to exposure to noise levels above 85 dBA. **Section 8.0** of this report outlines a number of recommendations to follow to protect worker hearing.

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Bruce Rogers, CEO

Bruce Rogers, B.Sc., DIH, CRSP  
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**APPENDIX A: ACGIH - TLVs for NOISE**

**ACGIH**  
**TLVs for Noise**


<b>Noise Exposure Limited when Criterion Level = 85 dB(A)</b>	
<b>Duration per Day</b>	<b>Sound Level dB(A) 3 dB(A) Exchange Rate</b>
16 h	82
8 h	85
4 h	88
2 h	91
1 h	94
30 min	97
15 min	100
7 min 30 sec	103
3 min 45 sec	106

## **SOURCE REFERENCES**

1. American Conference of Governmental Industrial Hygienists (ACGIH), 2011 TLVs and BEIs, Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices, [www.acgih.org/](http://www.acgih.org/)
2. Canadian Standards Association, CSA Standard Z94.2-02, Hearing Protection Devices – Performance, Selection, Care and Use.
3. DFB Group, 2009, <http://dfbgroup.ca/>
4. National Institute for Occupational Safety and Health (NIOSH), “Criteria for a Recommended Standard – Occupational Noise Exposure”, 1998, [www.cdc.gov/niosh/](http://www.cdc.gov/niosh/)
5. Newfoundland and Labrador Occupational Health and Safety Act and Regulations, 2009.





	<b>SECTION 5</b> <b>Personal Protective Equipment (PPE)</b>	Document:	DFB-COR-HSE-MA-001	
		Date & Rev:	03/30/15	0
		Dept:	Safety	

## 5 PERSONAL PROTECTIVE EQUIPMENT

### 5.1 POLICY STATEMENT

- 5.1.1 On all DF Barnes locations, employees must meet the basic requirements for personal protective equipment (PPE) described in this document.
- 5.1.2 At work locations where employees are required to use additional personal protective equipment, each employee must be:
- Instructed in proper use and maintenance of the PPE. **NOTE:** This instruction **MUST** be documented on a [Safety Training Memo \(DFB-COR-HSE-FM-009\)](#).
  - Instructed when to use the PPE.
  - Informed of its benefits.
  - Instructed on its limitations.
  - Instructed on when and how the PPE is to be replaced.
  - Checked to ensure that they are medically and physically (e.g. clean shaven) capable of wearing the equipment.
  - Checked for proper fit.

**THE INFORMATION IN THIS POLICY DOES NOT TAKE PRECEDENCE OVER OH&S REGULATIONS. ALL EMPLOYEES SHOULD BE FAMILIAR WITH THE OH&S ACT AND REGULATIONS.**

### 5.2 PURCHASING QUALITY EQUIPMENT

- 5.2.1 PPE can only be effective if it fits properly and provides protection, so all purchases should be made with this in mind. It may be necessary to purchase more than one style of personal protective device.

### 5.3 BASIC REQUIREMENTS

- 5.3.1 All safety equipment must meet CSA standards and shall carry markings, numbers, or certificates of approval.
- 5.3.2 Clothing that impedes the fit of any personal protective equipment must not be worn.
- 5.3.3 Approved hard hat liners must be worn.
- 5.3.4 Guidelines for choosing the appropriate PPE for specific work activities can be found in the DF Barnes [Personal Protective Equipment \(PPE\) Guide \(DFB-COR-HSE-CH-001\)](#).
- 5.3.5 Workers must inspect their PPE before using it. If damage is noted, replacement equipment will be made immediately available.
- 5.3.6 Old or defective equipment must be returned to the tool crib clearly marked "Do Not Use".

- 5.3.7 No worker is permitted to modify or tamper with any PPE.
- 5.3.8 PPE shall in itself not cause a hazard to the worker. If this is found to be the case, an alternative means of protection must be identified and used.
- 5.3.9 PPE must be worn at all times while the worker is on the worksite, unless otherwise posted.
- 5.3.10 Heavy Equipment operators may be exempted from protective headgear while in the cab if the PPE creates a risk to people and property if worn.

#### 5.4 HEAD PROTECTION

- 5.4.1 DF Barnes employees and Subcontractors are required to wear a side impact hard hat.
- 5.4.2 Hard hats will be worn in accordance with legislated safety standards.
- 5.4.3 Hard hats will have high visibility markers affixed.
- 5.4.4 No soft hat welding is permitted without prior completion and approval of the **Soft Hat Welding Variance**. Some Clients strictly prohibit the use of soft hats; therefore, use of this variance must be approved by the Client.
- 5.4.5 Hard hats will be worn with the peak forward, unless doing so creates a risk to the worker.
- 5.4.6 Only approved hard hat liners will be used. Any clothing that impairs the fit of the hard hat must not be worn under the hard hat.
- 5.4.7 Hard hat stickers not of company issue are prohibited, because they may impede critical identifiers to be used in the event of an incident or emergency, and/or may hide deficiencies or damage.
- 5.4.8 Hard hat stickers that intend to demean, insult, or demoralize others are not permitted.

#### 5.5 EYE/FACE PROTECTION

- 5.5.1 All eye and face protection will be CSA approved.
- 5.5.2 All eye and face protection shall be purchased to be worn with appropriate head protection.
- 5.5.3 Safety glasses shall fit high enough on the nose to adequately protect the eyes, and must be foam lined.
- 5.5.4 Prescription Safety Glasses must be CSA approved. If prescription glasses are not CSA approved, the worker is required to wear CSA approved safety glasses over the prescription glasses.
- 5.5.5 Contact lenses are not permitted in the work areas.
- 5.5.6 Face shields will be worn where work activities create airborne material that could injure the worker.
- 5.5.7 Sealed eyewear must be worn under the face shield during grinding operations, or where other high velocity materials are airborne.
- 5.5.8 Sealed eyewear will be used if the worker is assigned work in high winds, and dust and other airborne contaminants are present.

#### 5.6 HAND PROTECTION

- 5.6.1 Gloves must be worn at all times during work activities. This includes any time the worker is lifting or handling material.

- 5.6.2 Rings or other jewellery must not be worn where there is risk of the hands being crushed, caught in equipment, exposed to energized equipment or hot work, hooked on a structure or equipment, or when the worker is using power tools.
- 5.6.3 If there is a risk of a workers hand becoming caught in a pinch point, the worker(s), or the worker(s) together with the Supervisor, must find a different way to perform the work to minimize the risk created by the pinch point.
- 5.6.4 Additional special requirements are as follows:

NATURE OF RISK/ACTIVITY	SPECIAL REQUIREMENT
Risk of cuts or abrasions due to rough or sharp edges:	Cut resistant gloves and protective sleeves will be used.
Risk of burns to the hands:	Welder gloves or other heat resistant gloves must be used. Gloves must provide adequate protection to the wrist and forearm.
Grinding Activities:	Roper gloves must not be used for grinding activities, as they do not provide adequate protection to the workers hands. The gauntlet glove with suitable protection for the palm and forehand must be used.
Handling chemicals, solvents, and some types of cement/grout:	Chemical Resistant gloves must be worn. Gloves must be of the type identified in the MSDS.
All electrical work on energized systems:	Gloves providing the appropriate dielectric rated protection must be used
Using knives:	A minimum of Class 4 Cut Resistant glove must be used.

## 5.7 HEARING PROTECTION

- 5.7.1 Hearing protection is required whenever noise levels can exceed 85 decibels. For specific hearing protection requirements, see the section on **Noise Exposure** in Section 9 of this manual.
- 5.7.2 Ear protection must be adequate and comfortable. It may be necessary for the company to purchase more than one brand or style.
- 5.7.3 Hearing protection will list requirements at different decibel readings.
- 5.7.4 Workers will be required to have audiometric test conducted within the first three months of employment.
- 5.7.5 Once per calendar year, DF Barnes will ensure that audiometric testing takes place for each worker
- 5.7.6 DF Barnes will have a company visit site periodically throughout the year to ensure all workers receive their yearly testing.
- 5.7.7 All results will be monitored by DF Barnes Safety.

## 5.8 FOOT PROTECTION

- 5.8.1 All safety footwear must meet CSA Z195 Grade 1 - Green Triangle Patch.

- 5.8.2 All steel toe work boots must be CSA approved and display the appropriate markings. **NOTE:** Safety Footwear with protective toe caps manufactured from metal, Kevlar or composite materials, etc. are permitted as long as CSA Z195 Grade 1 standards are met.
- 5.8.3 Boots must have an upper six inches or greater in height, as measured from the top of the sole (on the instep side) to the lowest point on the top of the upper. The upper must encircle and support the leg at least 2 inches above the ankle bone.
- 5.8.4 Except where exempted (see following topic), boots must have a defined heel with a minimum height of 3/8 inch, measured from the sole.
- 5.8.5 Boots must have an appropriate tread/grip that minimizes the risk of slips and falls.
- 5.8.6 Except where exempted, boots must have laces and be laced fully to the top at all times to provide adequate ankle support.
- 5.8.7 Boots must be in good repair and steel must not be exposed. Boots must be maintained so they are free of tears and have a functioning tread/grip.
- 5.8.8 Metatarsal protection is required when the worker is using a “jack hammer” or exposed to a similar source of risk.
- 5.8.9 Rubber boots meeting the standards outlined in this policy may be worn for work in standing water/flooded areas.

## 5.9 SAFETY FOOTWEAR WITH NO DEFINED HEEL (EXEMPTION)

- 5.9.1 While working on steel structures or assigned duties where required to access steel structures including rebar, workers are permitted to wear “Ironworker” boots with no defined heel.
- 5.9.2 If the Ironworker boot is worn in any icy/slippery winter ground conditions, traction devices must be worn. **(This does not include grating or on steel).**
- 5.9.3 Anti-slip/Traction devices without a defined heel may be worn, provided the overshoe’s sole is pliable enough to allow the defined heel of the work boot to adequately grab on or grip ladder rungs, etc.

## 5.10 TRACTION DEVICES

- 5.10.1 Where workers are at risk of slips or falls because of icy, winter conditions, traction device footwear must be used. This is intended to be a last line of defence control and should never be the sole means of protecting a worker from slips and falls during winter conditions.
- 5.10.2 The use of traction devices must be identified on the JHA Card, along with additional measures to protect the worker from slipping.
- 5.10.3 In cases where it is impracticable to use a traction device, the methods for protecting the worker from slips and falls must be identified on the [Supervisor's Hazard Assessment \(DFB-COR-HSE-FM-043\)](#) and JHA Card.

## 5.11 FALL PROTECTION

- 5.11.1 A fall protection system must be used when working at heights of 1.8 meters or higher.
- 5.11.2 Workers must inspect their personal harness before each use.
- 5.11.3 Damaged harnesses must be permanently removed from service.
- 5.11.4 Refer to **Procedural Letter #5: Fall Protection** for specific requirements.



## 5.12 PROTECTIVE CLOTHING

- 5.12.1 High visibility clothing/vests must be worn in work areas.
- 5.12.2 Where any worker may be exposed to a flash fire or electrical equipment flashover, the worker will be provided flame resistant outerwear and must use it and other PPE appropriate to the hazard.
- 5.12.3 Clothing worn beneath flame resistant outerwear and against the skin must be made of flame resistant fabrics or natural fibres that will not melt when exposed to heat. (Get more prescription)
- 5.12.4 Where any worker is at risk of skin contact with harmful substances, protective clothing, gloves, or other protection must be in place before work can be started.

## 5.13 RESPIRATORY PROTECTION

- 5.13.1 Respiratory equipment must fit properly and be used within its limitations. Manufacturer's guidelines will be followed.
- 5.13.2 For equipment that requires an airtight seal, employees must be clean-shaven.
- 5.13.3 Refer to **Procedural Letter #7: Respiratory Protection**, for specific requirements.

## 5.14 INSPECTIONS AND AUDITS

- 5.14.1 Inspections shall be conducted daily and documented on the JHA Card.
- 5.14.2 A yearly audit, in accordance with NL Construction Safety Audit protocols, shall be made at each work location where personnel use personal protective equipment. The purpose of the audit is to determine the effectiveness of the program.
- 5.14.3 PPE use may be audited on any site using a BOS Audit card. There is also a [\*Personal Protective Equipment Audit Report \(DFB-COR-HSE-FM-022\)\*](#) available.

## 5.15 REFERENCES

- 5.15.1 [\*PPE Guide \(DFB-COR-HSE-FCH-001\)\*](#)

## **APPENDIX G**

Letter of Exemption from Buildings Accessibility Act and  
Regulations

November 27, 2014

Mr. Greg Snow, MNLAA  
Gibbons Snow Architects Inc  
40 Quidi Vidi Road, Suite 201  
St. John's, NL A1A 1C1

Attention: Mr. Greg Snow

**Re: Proposed New Industrial Blast and Paint Shop at 45 Pepperell Road, St. John's, NL for DF Barnes**

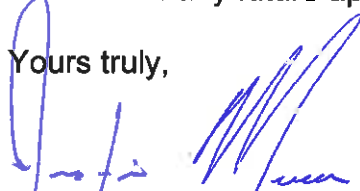
We acknowledge receipt of plans and other information pertaining to Buildings Accessibility for the above project.

After a review of the Buildings Accessibility applications and plans, it has been determined that at the present time, this project is exempt from the provisions of the Buildings Accessibility Act and Regulations

**Exemption Number: EA06534**

The design of the proposed project is therefore not required to comply with the technical requirements of the Buildings Accessibility Regulations. Any future reconstruction at this location must be similarly submitted to this department for a re-assessment of whether the conditions for exemption remain valid. Please quote the above Exemption Number on any future applications for this property.

Yours truly,



**Justin K.S. Mercer**  
Design Approval Technician I  
GSC, Mount Pearl, NL  
Phone: (709)729-3689

JKSM/hh

cc

- City of St. John's
- Ms. Sharon Williams, Manager, Service NL, Mount Pearl
- Dave Saunders, Technical Service Inspector, Service NL, Mount Pearl

# APPENDIX H

Building Permit (February 27, 2015)







**OFFICIAL RECEIPT**

City of St. John's  
 10 New Gower St.  
 P.O. Box 908  
 St. John's NL  
 A1C 5M2  
 www.stjohs.ca

February 27, 2015 10:43 AM

Receipt: **jmb00013307**  
 Total: **\$26,308.80**

**Chimo Construction**

Description	Due	Payment Type	Amount
MCR (Building Permit)	\$26,308.80	Cash:	
B1 144021 45 Pepperell (Quantity: 1 ; Unit Price: \$26,308.80)		Debit Card:	
		Credit Card:	\$26,308.80
		Cheque:	
		-----	
		Total Tended:	\$26,308.80
		Change:	
20150227-20150227JMB1	HST# R121 688 568	Total Due:	\$26,308.80
		Total Paid:	\$26,308.80