

# **Appendix K**

## **Beneficial Re-Use of Extracted Aluminum (EA)**

### **Background**

Recyclable extracted aluminum consists of any EA of a particle size greater than ¼” in diameter but less than 4”x4”x8”, to be known as EA Briquettes. GD-OTS/ATK has entered into an agreement with Dyno Nobel (DN) to supply EA Briquettes to be used as an ingredient in their commercial explosive products. In order for DN to efficiently re-melt the EA Briquettes, large chunks of EA material must be crushed to create the EA Briquette. Therefore, GD-OTS/ATK has also entered into an agreement with ExPal (located at Camp Minden) to provide and operate a crushing facility on site to include all the necessary services, crushing equipment, material handling systems, and safety systems required to crush the EA stored at Camp Minden to meet the DN specifications for re-use. The facility and process are described below.

### **Crushing Facility/Equipment**

The crushing equipment and process will be housed in Bldg 1617, per an agreement between ExPal and the LMD. ExPal is preparing Bldg 1617 for the crushing operations. The building will be cleaned and services improved in order to meet the requirements of the crushing operation. The building will be compliant with 4145.26 requirements for processing explosives. The crushing operation will be performed with proper separation between the operation and operator control room. Operator control will be performed remotely. There will be high pressure deluge on the crusher activated by UV/IR sensors. The operation will also have CCTV cameras with monitors and recording capability.

The crusher system consists of a feed conveyor with separator, crusher, separation magnet, out-feed conveyor with separator and packaging feed system. Once installed, all of the equipment will operate as a continuous system. See Figure 1, attached, for layout and Figure 2 for equipment pictures.

### **Crushing Process**

EA material will be brought into the crushing facility from the magazines utilizing the procedures contained within the site-specific/approved SOPs. The boxes of EA will be emptied

into a feed hopper which feeds the crusher feed conveyor. As the material flows down the conveyor, the small particles less than ¼” are separated from the large pieces. These fines are removed from the conveyor separator and are packaged for shipment to Clean Harbors Colfax for destruction. DN has indicated that they have no use for the fines. The large pieces enter the crusher which reduces them to the slot size required by DN. The processed material comes out of the crusher through a second separator where the fines generated from the crushing operations are removed and handled in the same manner as previously described; and the EA Briquettes generated are then fed into a holding vessel. Once the holding vessel is full, the process is shut down and the holding vessel is changed out. The full vessel is taken to another bay where it is emptied into a packaging feed system which fills the required packaging to the desired weight of 50 lbs. Packaging will be DOT approved packaging as specified in the EX permit (attached) consisting of an inner liner and fiberboard box. The boxes are then sealed and labeled according to the DOT requirements and palletized for shipment. Pallets are placed back in a magazine where full loads will be built for shipping.

### **Crushing Schedule**

The crusher equipment is expected to arrive at Camp Minden by 10/7/14. Equipment installation will be complete by 10/17/14. After installation there will be inert trial runs to proof the equipment and the process with employee training to follow. Completion of the training is projected for 10/23/14. After a pre-startup safety review, the aluminum crushing process is projected to begin the week of 10/27/14. The projected processing rate is forecasted at 20,000 lbs/day, on a 2-shift per day, 10 hr/shift schedule, 4 days/week or 80,000 lbs/week. Current projected shipping rate (as of 9/29/14) to DN is two loads of 40,000 lbs each for a total of 80,000 lbs/week. Any excess, properly packed EA Briquettes, that exceeds the DN shipping schedule, will go back to the magazines from which it came, or others as agreed to at the time of storage, and be shipped out as soon as possible thereafter. All EA will be removed from the site by the original AOC date of the week of June 21, 2015, if not sooner. See Figure 3 “Extracted Aluminum Crushing Project”

### **Interim Recycle Operations**

As part of this project, DN requested EA Briquette material shipments to start prior to the start of the crushing operation. Final DOT shipment authorization for Recyclable EA was approved on August 12, 2014. EQ generated the necessary documentation to implement manual screening and sorting of material to meet DN needs and received approval from EPA to proceed. Building 1607 is being used for the manual screening and repackaging of extracted aluminum for recycle. Only Net Explosive Weight (NEW) of such materials as allowed by the building weight limits are brought to the building at one time. No more material than can be processed and repackaged within a four hour period will be removed from the day magazine and actually brought into the

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building at any time. Repackaged materials will be removed from the building and placed in the day magazine or placed on a truck located at the building for immediate transport back to the magazine. The day magazine will be utilized for Class 1.1D EA or EA waste material consisting of the fines less than 1/4" in diameter generated as a result of the repackaging operations. Once a truck is filled with Class 1.1 materials, it will be moved from the loading dock and returned to the magazine for storage accumulation until complete loads are generated for shipment off site. The first shipment to DN using the modified specification was processed and the 1<sup>st</sup> shipment of 7,000 lbs was made on September 3<sup>rd</sup>, 2014. As of 9/29/14, DN indicates that the recycling of The EA is proceeding on schedule and will schedule the next shipment in Early November, 2014.

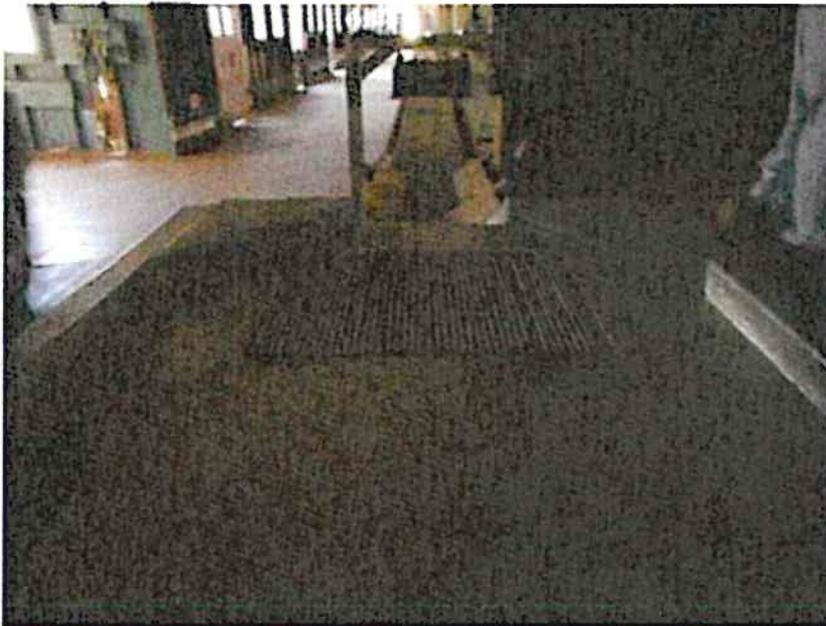
October 02, 2014

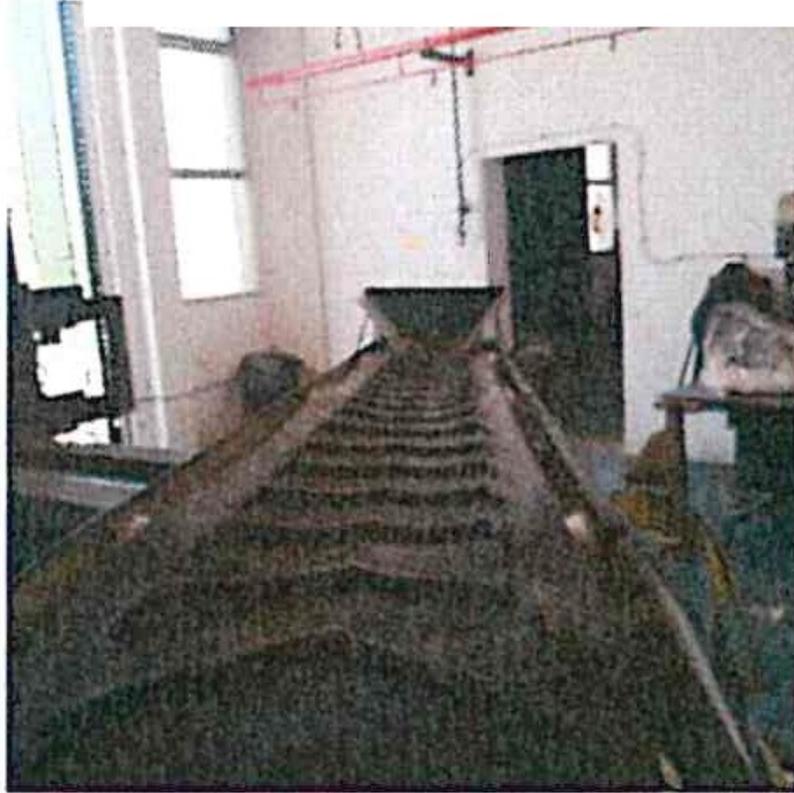
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**Figure 2**

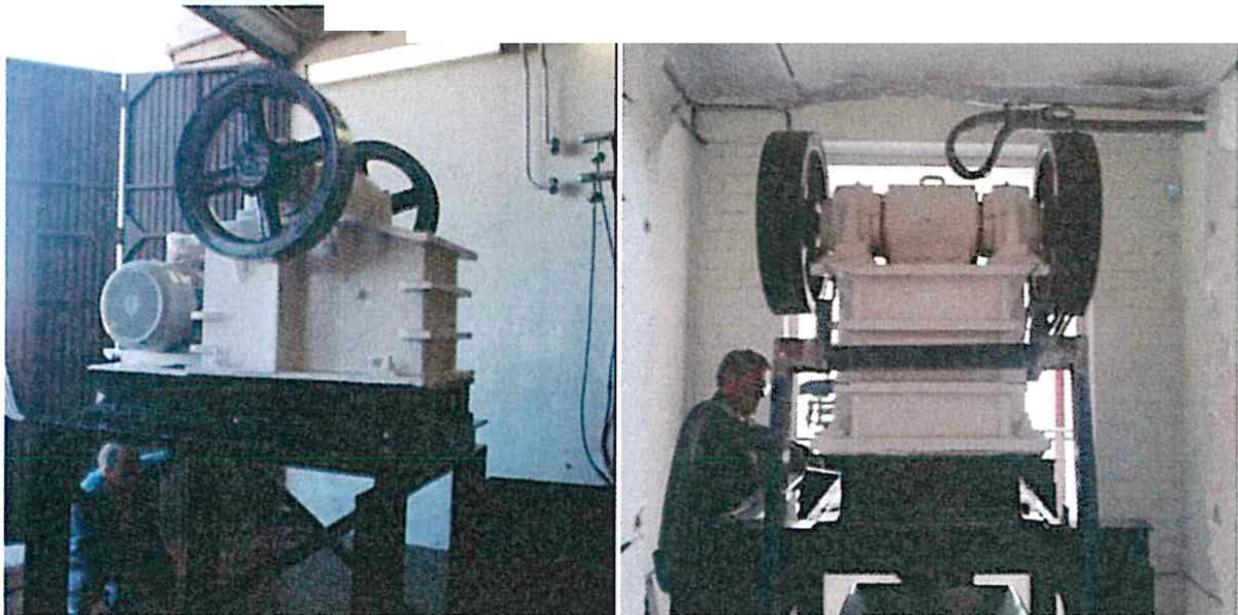
**Dust separation table**





**Crusher Feed Belt**

**Crusher**



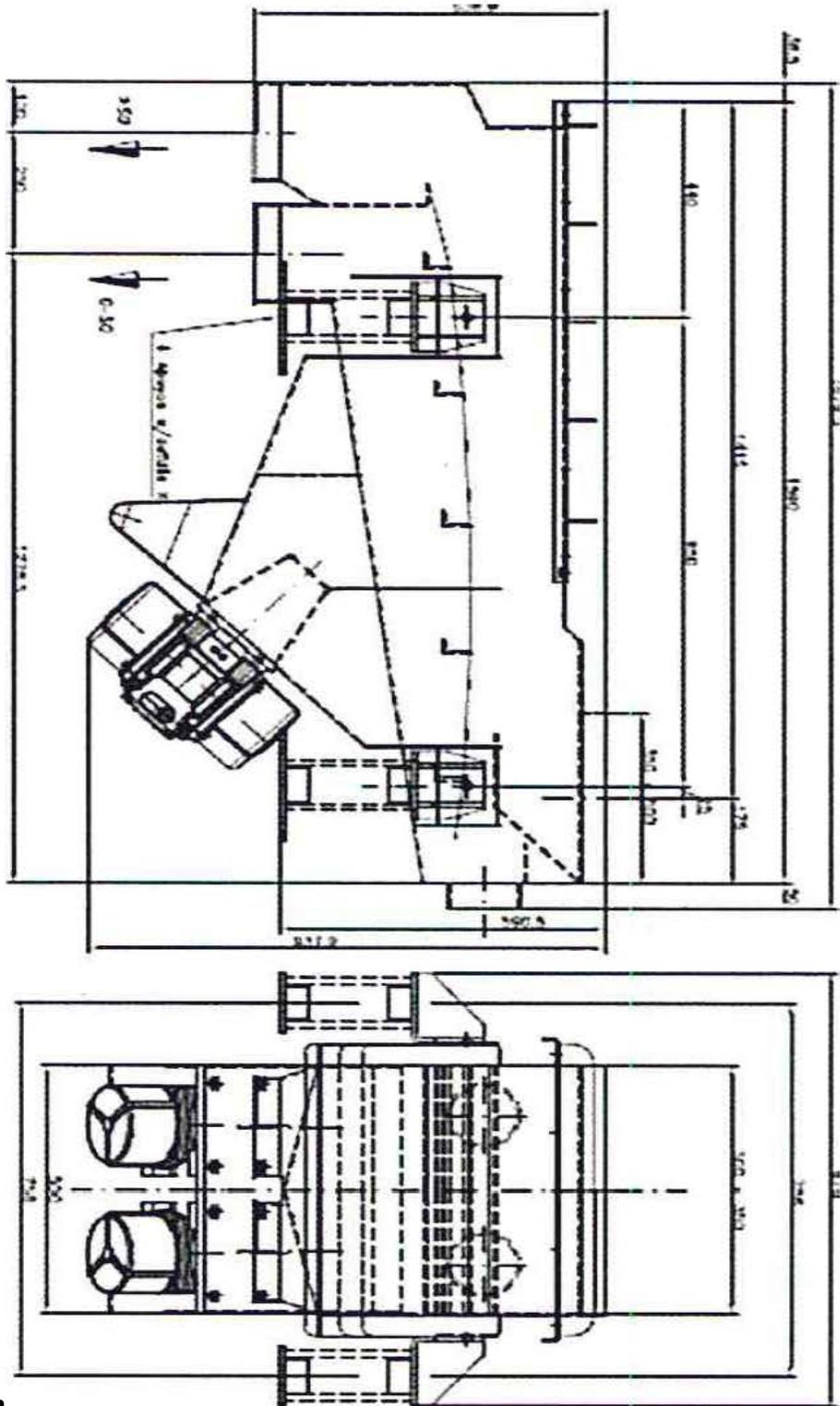
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024947

**Remote Crusher Drive**





**Sieving System**

Extracted Aluminum Crushing Project		09/18/2014									
	Progress	2014					2015				Comments
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
<b>1. Building Preparation</b>	In Progress	09/30	09/30								
Chemically neutralize explosive on existing abandoned equipment	To start when authorized.		09/15								
Remove abandoned equipment	To start when authorized.		09/30								
<b>2. Spain Equipment</b>	In Progress			10/07							
Pack equipment in 40 ft. shipping container		08/15									
Houston arrival				10/03							
Camp Minden arrival				10/07							
<b>3. US Equipment</b>	In Progress			10/07							
Equipment Quotations		08/23									
Equipment Purchase Orders		08/31									
Equipment Delivery				10/07							
<b>4. Installation and Prove-out</b>				10/23							
Risk Assessment			09/15								
Equipment Installation				10/17							
Standard Operating Procedure				10/20							
Preliminary Safety Review				10/21							
Operator Training				10/22							
Inert Trial				10/22							
SOP Fine Turing and Operator Training				10/23							
Pre-Startup Safety Review				10/24							
<b>5. Operations</b>				11/3						4/30	

Figure 3



U.S. Department  
of Transportation

East Building, PHH – 32  
1200 New Jersey Avenue, Southeast  
Washington, D.C. 20590

Pipeline and Hazardous  
Materials Safety Administration

The US Department of Transportation  
Competent Authority for the United States

**CLASSIFICATION OF EXPLOSIVES**  
**FIRST REVISION**

Based upon a request by EQ Industrial Services, Inc. (EQIS), 2701 N. I-94 Service Dr. Ypsilanti, Ypsilanti, MI 48198, the following items are classed in accordance with Section 173.56, Title 49, Code of Federal Regulations (49 CFR). A copy of your application, all supporting documentation and a copy of this approval must be retained and made available to DOT upon request.

**U.N. PROPER SHIPPING NAME AND NUMBER:**

Substances, explosive, n.o.s., UN0475

**U.N. CLASSIFICATION CODE:** 1.1D

**REFERENCE NUMBER**

EX2014050536

**PRODUCT DESIGNATION/PART NUMBER**

Waste cardboard, paper (filter paper or other paper), wood, trash, copper, wax plugs, and tar debris, contaminated with tritonal; extruded aluminum contaminated with tritonal; H-6 residue contaminated with tritonal; tritonal

**NOTES:**

This approval is valid for transport of waste product for disposal and transport of product to a site for recycling, and shall expire on June 30, 2016.

The following packaging method is assigned by the Competent Authority for the United States: Packaging Instruction 112(b) is assigned, except that no metallic packagings are authorized. In addition to Packaging Instruction 112(b), UN 11G fiberboard boxes, and equivalent non-specification packagings are authorized.

This approval as revised supersedes all previous versions.

**DATED:** 08/12/2014

For Dr. Magdy El-Sibaie  
Associate Administrator for Hazardous Materials Safety

Tracking No: 2014080430

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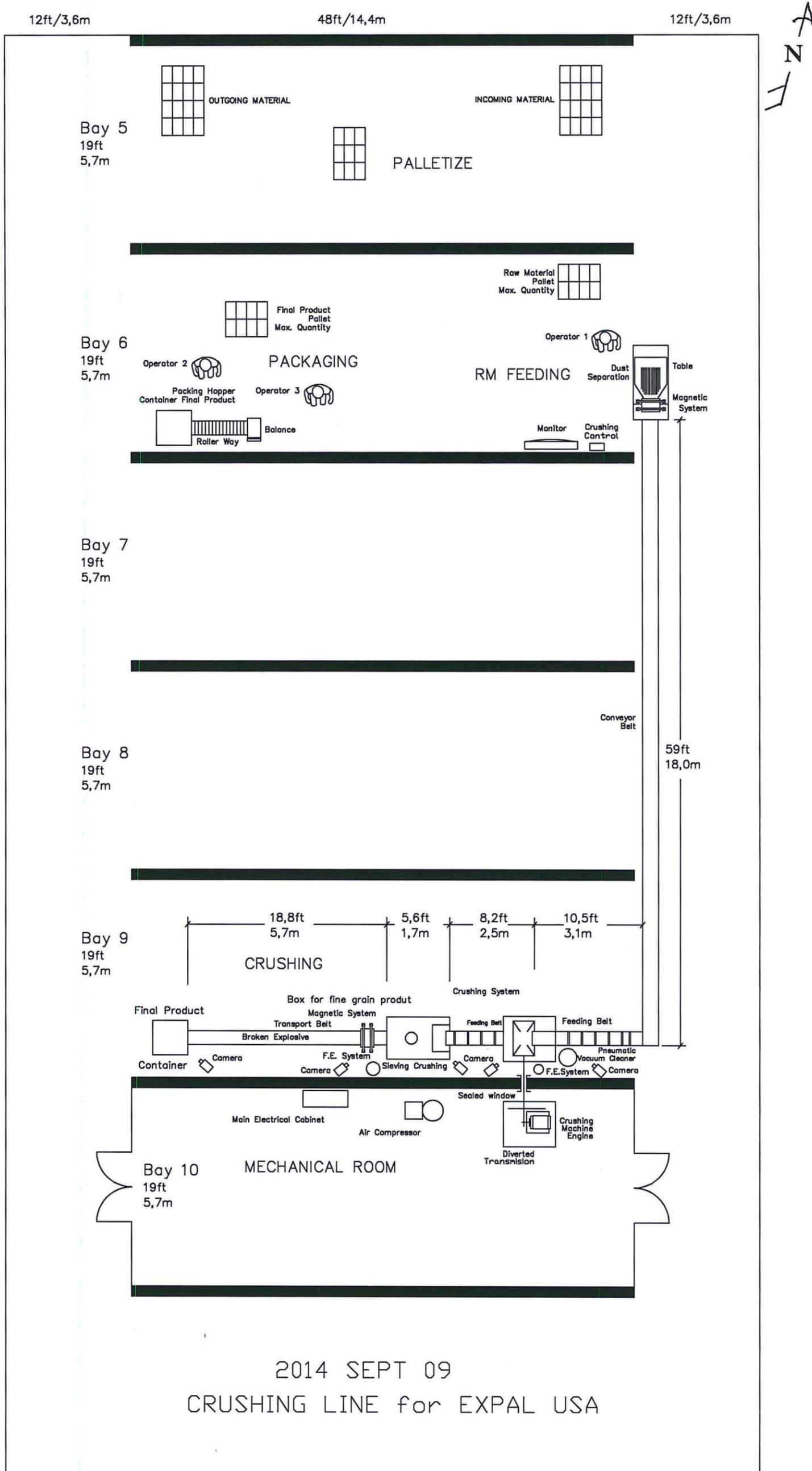


Exhibit 1