Attachment 1

WASTE ANALYSIS PLAN

1.0 WASTE ANALYSIS PLAN

1.1 INTRODUCTION

This Waste Analysis Plan (WAP) was prepared to support the Part B permit re-issuance for the ATK-Promontory facility (ATK). The plan is intended to provide guidance and assistance in sampling and testing of the two general categories of hazardous waste at ATK. These two groups include "reactive waste", and "chemical waste". The term "reactive waste" consists of propellant and explosive waste, as defined in R315-2-9(f). The term "chemical waste" is the term used to describe all non-reactive RCRA hazardous waste, or unknown potential RCRA hazardous waste. This category could include drummed waste, lab packs, bulk wastes, waste from offsite ATK facilities, etc. The plan outlines a process for making a hazardous waste determination for both of these general waste categories. This plan will be on file with the Environmental Services and Operations group.

The WAP was developed to ensure that all reactive waste will be properly characterized prior to being stored and/or treated. The WAP also outlines how chemical wastes that are being stored prior to shipment to an offsite disposal facility will be characterized. Information on these waste chemicals is obtained from process knowledge, MSDSs, and chemical analysis.

1.1.1 Site History

ATK-Promontory (ATK) has been manufacturing explosives at this site for over 50 years. The facility manufactures rocket motors, military flares and related items.

1.2 WASTE ACCEPTANCE PROTOCOL

1.2.1 Acceptance of On-Site Reactive Waste for Storage and Treatment

All reactive wastes must be characterized before they can be accepted for storage or treatment. The characterization will be accomplished through a profiling process which will identify the type of reactive waste as defined in R315-2-9(f) and determine whether the waste exhibits any additional hazardous waste characteristics, and if it is listed in accordance with R315-2-9 and 10 UAC. The reactive waste profile is completed through process/generator knowledge, MSDS and testing, if needed. These profiles must be completed and approved before any waste is accepted at the burn grounds. Each profile includes the following information:

- Reactive material family name and general formulation type
- Chemical composition with percentage ranges
- US DOT hazard classification or suspected classification for developmental materials
- EPA codes
- Physical characteristics
- Underlying hazardous constituents (if any)
- Reactivite waste category as defined in figure 3-5
- Packaging type and other applicable information

The profile approval process includes approval by the Generator, Safety and Environmental Services

Any new propellants or other reactive wastes will be characterized as described above before they are accepted for storage or treatment. Any waste that does not fit an existing profile, must be profiled before the waste can be accepted. In the event that a reactive waste cannot be properly characterized with existing information, additional information will be obtained, which may include laboratory analysis.

Laboratory wastes can be characterized using generator knowledge. Upon receipt of the reactive waste at permitted storage facilities, all containers are inspected to verify proper labeling, and packaging. The total quantity and type of propellant is then recorded in the facility operating record.

1.2.2 Acceptance of Hazardous Chemical Waste for Storage and Offsite Disposal

Hazardous chemical waste generated at the facility, and other ATK facilities are accepted for storage at M-186. Upon receipt of all hazardous waste at M-186, all containers are visually inspected to verify proper labeling, packaging and paper work. Upon acceptance, a unique container number is recorded in the chemical waste tracking system.

All wastes received from an off site source have been characterized in advance, and are assigned a container number at the time of delivery. These shipments are visually inspected to verify that the type and quantity of the waste matches the profile and manifest. The manifest numbers for off-site generated hazardous waste are entered into the chemical waste tracking system upon acceptance.

Most waste generated on-site is characterized before arrival at the permitted facility, through generator/process knowledge. However, some waste may be received at the TSDF without characterization. When this occurs, sampling and testing of the waste stream is conducted to properly characterize the waste.

Whenever a waste is accepted, all of the pertinent information on the waste is entered into the operating record. This information shall, at a minimum, include the waste profile description, EPA codes, quantity, date of generation, date received, storage location and date it was shipped off site for disposal,. The chemical waste tracking system will also include the manifest number(s) for all hazardous waste received from an off-site source and all off-site shipments of hazardous waste to a TSDF. At a minimum the following resources are used to help characterize chemical waste:

- R315-2 of the UAC
- Generator process knowledge
- MSDS
- Laboratory analysis
- National Institute for Occupational Safety and Health: Pocket Guide to Chemical Hazards

1.2.3 Acceptance of Off-site Generated Reactive Waste

ATK periodically receives reactive waste from off-site ATK Launch Systems and non-ATK Launch Systems facilities. This waste is accepted by ATK for storage prior to on-site treatment at the M-136 burn grounds. All off-site generated wastes must be approved in advance through a waste acceptance and profiling process. The waste profile for wastes received from off-site contains the same information as profiles for wastes generated on-site (described above).

Before the waste is accepted, ATK reviews the shipping papers and visually inspects the container(s) to confirm that container(s) and shipping papers agree and that the waste description meets the previously approved waste profile. Discrepancies will be resolved with the generator before the waste is accepted. After the waste has been visually inspected and accepted by ATK, it will be entered into the reactive waste tracking system. Buildings/areas authorized to store reactive waste, and quantity limits are specified in Module III.

3.3 TESTING CRITERIA

3.3.1 Parameters and Rationale for Testing Reactive Wastes

Reactive waste may carry several waste codes, but will always carry a D003 waste code for reactivity and such wastes are generally classified as explosives. Due to the inherent hazardous nature of reactive wastes, this material is not routinely sampled or analyzed as part of this WAP. In addition to classifying and characterizing the reactive waste managed at the ATK facility, in accordance with R315-2 of the UAC, ATK will assess emission hazards associated with the open burning of these hazardous wastes as required in 40 CFR 264.601, Environmental Performance Standards. Figure 3-2 the Reactive Waste Treatment and Disposal Decision Matrix, diagrams the steps and decisions that are addressed whenever reactive wastes are treated and subsequently disposed.

3.3.2 Parameters and Rationale for Testing Chemical Waste

ATK generates two general categories of solid waste that can be defined as hazardous in accordance with R315-2 of the UAC: 1) off-specification commercial chemical products, and 2) spent materials. These wastes may be disposed of individually or consolidated with other hazardous waste streams. Figure 3-3 the Chemical Waste Characterization and Disposal Decision Matrix, identifies how ATK will decide whether a waste is hazardous as defined by R315-2 of the UAC.

Off-specification commercial chemical products are chemicals that have not been altered from their original manufactured formulation but are discarded for some reason. The most common reason for discarding these chemicals is because they are no longer needed or the shelf life has been exceeded. Under this scenario, generator knowledge can be used to characterize these wastes. Detailed information on commercial chemical products is available on the MSDSs.

A spent material is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without being processed or reclaimed. ATK has process knowledge for most of its spent material waste streams. Annual evaluation will be performed to verify chemical composition and concentration ranges. All new or modified spent material waste streams will be initially assessed at the point of generation and annually thereafter to maintain proper characterization of all waste streams.

3.4 TEST METHODS AND SAMPLING

3.4.1 Test Method [40 CFR 264.13(b)(2)]

ATK will make a hazardous waste determination for all waste streams generated, stored or treated onsite. This waste stream evaluation will be made utilizing process knowledge and/or analytical testing. All analytical testing will be completed at a Utah certified laboratory. Only EPA approved test methods, selected from the most current version of SW-846 list ("Test Methods for Evaluating Solid Waste, Physical and Chemical

Methods"), will be used. Test method selection will be made, based on the most applicable method as described in Chapter Two of the SW-846 publication. New test methods will be used only after they have been approved by the EPA. The laboratory will certify new methods during the annual certification process. Specific methods which may be used to characterize wastes are listed in Figure 3-4.

3.4.2 Sampling Methods [40 CFR 264.13(b)(3), 261 Appendix I and UAC R315-8-2.4]

Waste sampled at the ATK facility consists of new waste, unknown waste, waste from changed processes, and waste sampled for annual re-verification analysis. Representative samples will be collected and handled in accordance with the procedures and protocols identified in Table 3-1. At a minimum the following safety precautions are used when sampling waste materials:

- Chemical resistant gloves and safety glasses will be used while sampling all waste. Based on the chemical hazards and splash potential, protective clothing and a splash shield or respirator may also be utilized.
- Non-sparking tools will be used to sample any waste that presents a fire hazard.
- All necessary equipment and materials will be available prior to sampling

Table 3-1

	Container/Containment Type					
Waste Matrix	**Drums, Totes**	**Boxes, Bags, Sacks**	**Storage Tanks**	**Ponds, Lagoons, Pits**	**Tankers**	**Roll-Off Bins**
Free Flowing Liquids/Slurries	Coliwasa	N/A	Pump/Dipper	Dipper	Dipper	N/A
Sludges	Trier/Spoon	N/A	N/A	N/A	N/A	Trier/Bucket/Shovel
Moist Powder/Granules	Trier/Spoon	Trier/Spoon	N/A	N/A	N/A	Trier/Shovel
Dry Powder/Granules	Thief/Spoon	Thief/Spoon	N/A	N/A	N/A	Thief/Shovel
Sand/Packed Powder	Auger/Spoon	Auger/Spoon	N/A	N/A	N/A	Auger/Shovel
Large Grained Solids	Large Trier/Spoon	Large Trier/Spoon	N/A	N/A	N/A	Large Trier/Shovel
Debris (i.e. Rags, Gloves, Towels, etc.)	Rag[1]	Rag[1]	N/A	N/A	N/A	Rag[1]

[1] The rag technique is used for sampling solid material such as rags, gloves and paper towels. After a container has been selected, it is opened and a representative sample collected and placed in the sample container. One or more of the varied materials (e.g. gloves, tongue depressors, rags, paper, plastic, etc.) is sampled depending on the mix of the container.

A variety of sampling equipment and materials will be used to collect waste samples. All reusable equipment will be washed with a detergent solution and thoroughly rinsed

before re-use. Disposable equipment may also be used. This equipment and specified sampling methods are described in the SW-846 publication.

Drummed consolidation waste will be randomly sampled each year as outlined in the table below. "Average Monthly Drum Number" will be based on the previous calendar years average monthly drum inventory, for each waste stream. Samples will be obtained in the first quarter of each calendar year.

Table 3.1	
Average Monthly Drum Number	Aliquots Selected
2 to 8	2
9 to 27	3
28 to 64	4
65 to 125	5
126 to 216	6
217 to 343	7
344 to 512	8

The above table is based on a table found in ASTM D 140-70, "Standard Methods of Sampling Bituminous Materials," ASTM D 140-70.

All sample containers used during a sampling event will be new, and certified clean from a reliable source. Container selection will be based on the chemical/container compatibility, physical state and sample volume. A label will be attached to each sample container which will include the following minimum information:

- Sample number
- Samplers name
- Date
- Time
- Location

In addition to the information included on the label, the chain of custody, which accompanies all waste characterization samples, will also include the following:

- Composite or grab sample
- Number of containers
- Remarks section
- Relinquishment signature block

All samples will be preserved as specified in SW-846 while in storage at ATK and while in transit to the testing laboratory.

3.5 FREQUENCY OF ANALYSIS

3.5.1 Frequency of Analysis for Reactive Waste [40 CFR 264.13(b)(4) and UAC R315-8-2.4]

Reactive waste treated at the ATK burn grounds come from various ATK Launch Systems facilities, Autoliv ASP and occasionally from other Department of Defense facilities or contractors. These reactive wastes are derived from energetic materials that have been manufactured to strict specifications. Therefore, the chemical composition of

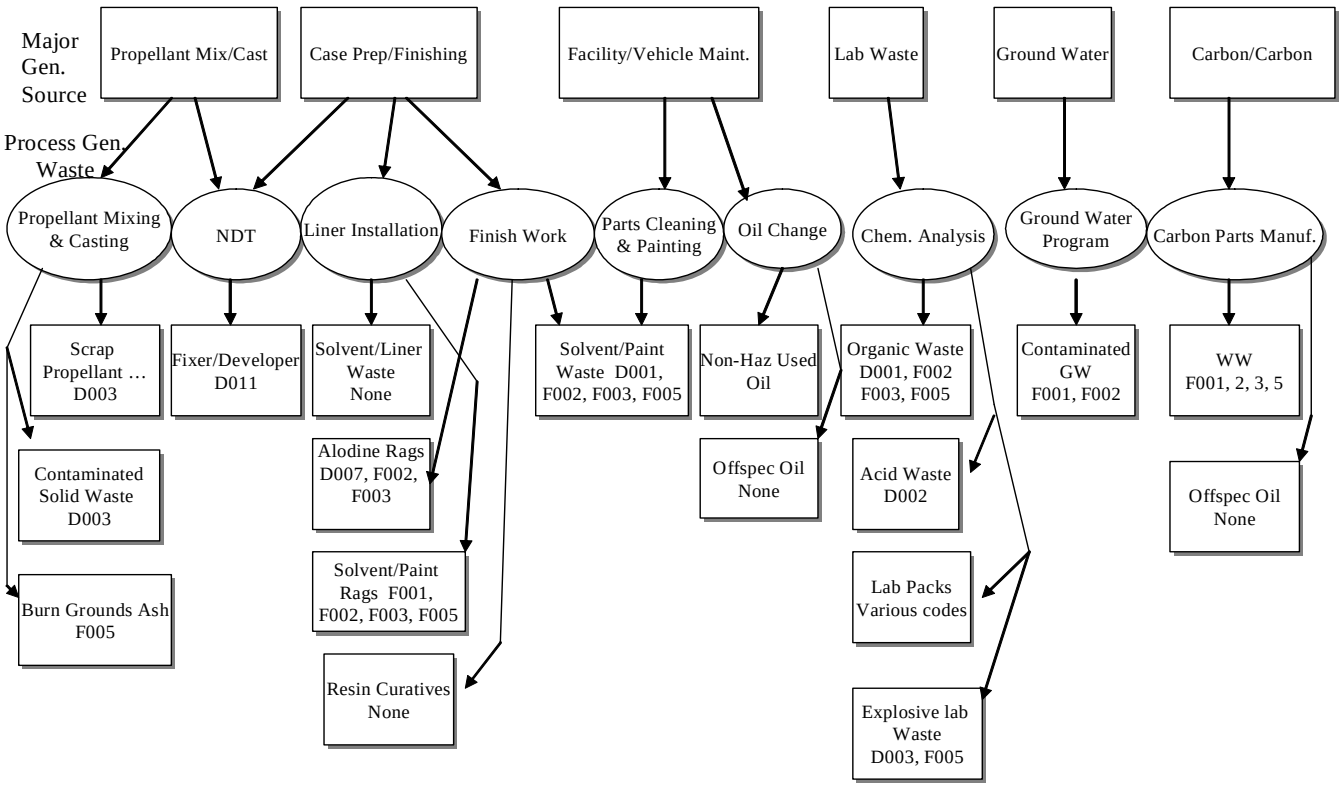
each formulation is well known. As discussed above, ATK characterizes all reactive waste streams using generator knowledge. While these energetic waste streams are not analyzed prior to being treated, ATK does review the reactive waste profile on an annual basis or any time the manufacturing process changes.

3.5.2 Frequency of Analysis for Chemical Waste

The industrial processes at ATK generate a number of routine waste streams. Figure 3-1 shows major waste streams and processes generating those wastes. These waste streams will be evaluated annually to verify waste characterization is still accurate. The waste characterization will also be re-evaluated whenever the process that generated the waste changes to determine if the process change altered the characteristics of the waste stream.

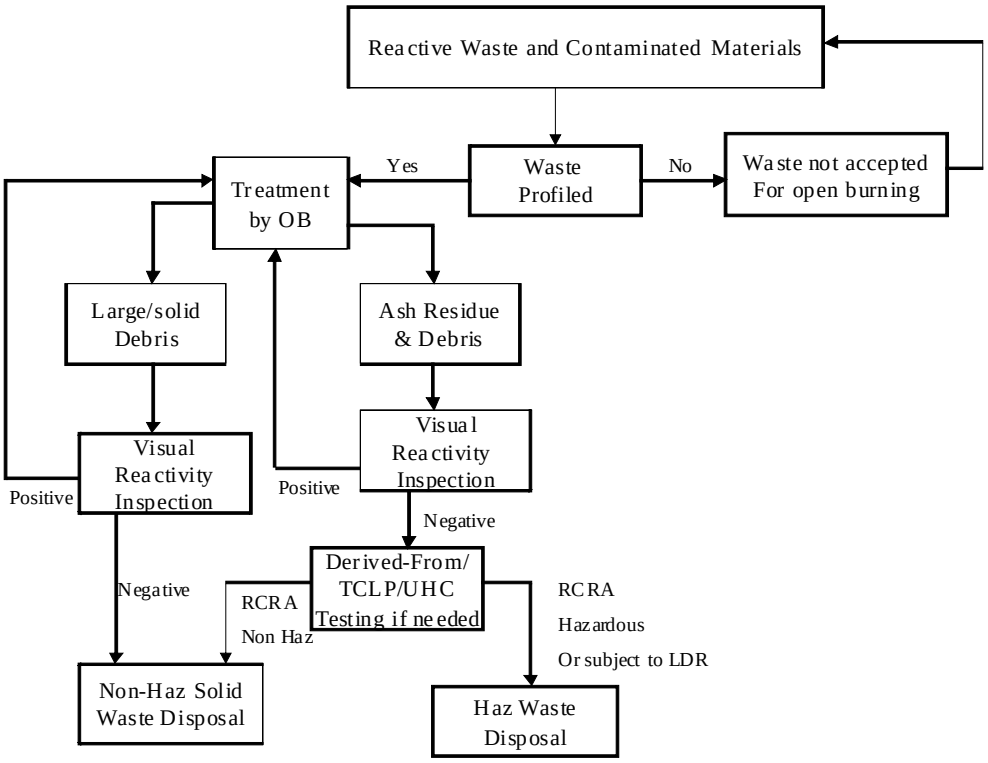
Off specification commercial chemical products are well characterized by the information on their MSDSs. These wastes are not analyzed on a routine basis.

ATK- Promontory Waste Generation
Figure 3-1



Note: The EPA codes included above are primary codes only; The above list includes major waste streams only.

Reactive Waste Treatment and Disposal Decision Matrix
Figure 3-2



Chemical Waste Disposal Decision Matrix
Figure 3-3

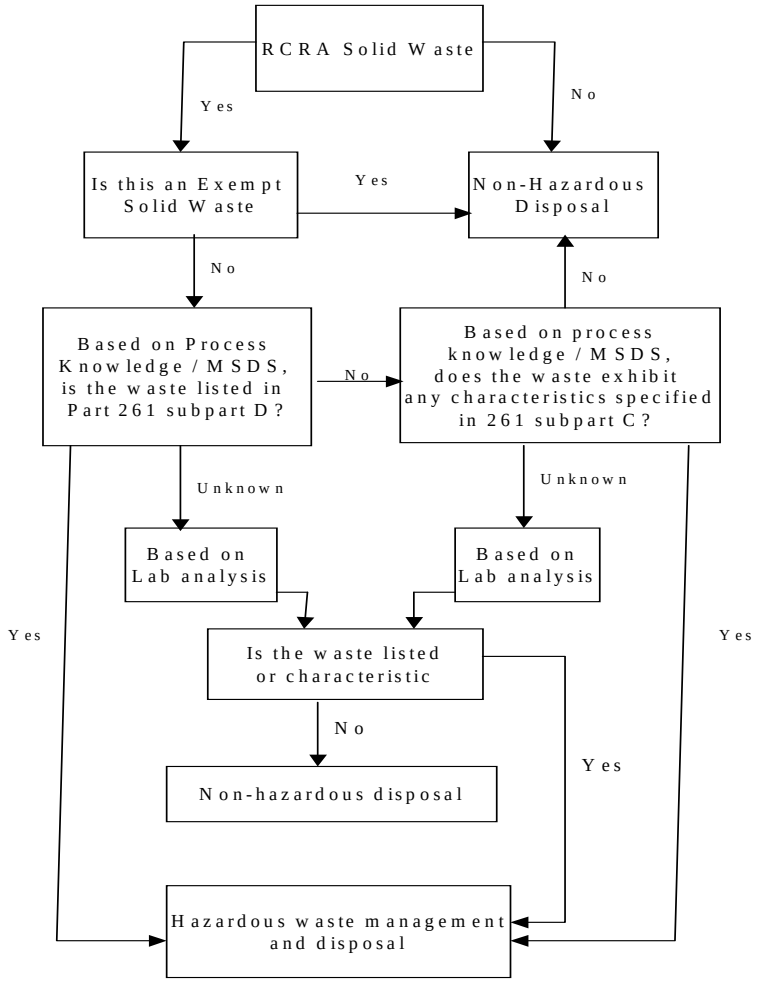


Figure 3-4

Analytical Methods for Metals

Parameter	Analytical Method	Preparation Method *
Arsenic	EPA 6010B	EPA 3005A (W) & 3050B (S)
Barium	EPA 6010B	EPA 3005A (W) & 3050B (S)
Beryllium	EPA 6010B	EPA 3005A (W) & 3050B (S)
Boron	EPA 6010B	EPA 3005A (W) & 3050B (S)
Cadmium	EPA 6010B	EPA 3005A (W) & 3050B (S)
Chromium	EPA 6010B	EPA 3005A (W) & 3050B (S)
Copper	EPA 6010B	EPA 3005A (W) & 3050B (S)
Lead	EPA 6010B	EPA 3005A (W) & 3050B (S)
Manganese	EPA 6010B	EPA 3005A (W) & 3050B (S)
Mercury	EPA 7470A (W) & 7471A (S)	EPA 7470A (W) & 7471A (S)
Molybdenum	EPA 6010B	EPA 3005A (W) & 3050B (S)
Nickel	EPA 6010B	EPA 3005A (W) & 3050B (S)
Selenium	EPA 6010B	EPA 3005A (W) & 3050B (S)
Silver	EPA 6010B	EPA 3005A (W) & 3050B (S)
Thallium	EPA 6010B	EPA 3005A (W) & 3050B (S)
Vanadium	EPA 6010B	EPA 3005A (W) & 3050B (S)
Zinc	EPA 6010B	EPA 3005A (W) & 3050B (S)

Analytical Methods for Organics

Parameter	Analytical Method	Preparation Method
Volatle Organics	EPA 8260B	EPA 5030B (W) & 5035 (S)
Semivolatile Organics	EPA 8270C	EPA 3510C (W) & 3550B (S)
TPH	EPA 8015B	EPA 3510C (W) & 3550B (S)
TOC	EPA 9060A (W only)	EPA 9060A (W only)
Oil & Grease	EPA 1664A (W only)	EPA 1664A (W only)

Miscellaneous Test Methods

Parameter	Analytical Method	Preparation Method
pH	EPA 9040C (W) & 9045D (S)	EPA 9040C (W) & 9045D (S)
Ignitability	EPA 1010A (W only)	EPA 1010A (W only)
Toxicity	EPA 6010B/7470A (Metals) EPA 8260B (Volatile Organics) EPA 8270C (Semivolatile Organics)	EPA 1311/3010A EPA 1311/5030B EPA 1311/3510C
Explosives	EPA 8330	EPA 8330
Perchlorate	EPA 314.0	EPA 314.0
Anions	EPA 9056A	EPA 9056A (W) & 5050 (S)
TSS	SM 2540D	SM 2540D
TS	SM 2540B	SM 2540B

* The 'W' indicates a water matrix. Samples that are water soluble liquids (or aqueous phase) fit into this category. Non-aqueous liquids are usually treated as solids depending on the test method. In the case of an oil matix that cannot be analyzed by the solid preparation method, a waste dilution is often performed. The ‘S” indicates a solid matrix.

Figure 3-5

REACTIVE WASTE CATEGORY	
Group	**Description**
A	**Class 1.3 Composite Propellant without HMX, RDX or CXM-3**
B	**Class 1.3 Composite Propellant with HMX, RDX or CXM-3**
C	**Class 1.1/1.3 Nitrate Ester Containing Material**
D	**High Explosive Material**
E	**Class 1.3 Pyrotechnic, Illuminants, Metal Powders, or Autoliv ASP Products**
F	**Oxidizers (does not include high explosives such as HMX, RDX or CXM-3)**
G	**Developmental Materials-R&D Lab Use Only(small quantity)**
H	**Unique Waste (small quantity)**