FINAL WORK PLAN

2010 POWDER HOUSE

ASSESSMENT AND REMOVAL

RED DEVIL MINE

Red Devil, Alaska

September 2010

FINAL WORK PLAN

2010 Powder House Assessment and Removal
Red Devil Mine

Red Devil, Alaska

Prepared for:

United States Department of the Interior
Bureau of Land Management

By:

Weston Solutions, Inc.

With

Marsh Creek, LLC

September 2010

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LIST OF ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
bgs	below ground surface
BLM	Bureau of Land Management
BTEX	benzene, toluene, ethylbenzene, xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DRO	diesel range organics
EOD	Explosive Ordnance Disposal
EPA	United States Environmental Protection Agency
FSO	Field Safety Officer
GRO	gasoline range organics
IDW	investigation-derived waste
MS/MSD	matrix spike/matrix spike duplicate
PPE	personal protective equipment
PID	photoionization detector
POL	Petroleum, Oil and Lubricant
QA/QC	quality assurance/quality control
RDM	Red Devil Mine
RRO	residual range organics
SUXOS	Senior Unexploded Ordnance Supervisor
WESTON	Weston Solutions, Inc.

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1.0 INTRODUCTION

This Work Plan presents the standard field procedures to be followed for work conducted by Weston Solutions, Inc. (WESTON®) under contract with Marsh Creek, LLC to safely assess the potential explosive risk present at the former Powder House located at the Red Devil Mine (RDM) in Red Devil, Alaska (Figure 1) for the United States Department of the Interior, Bureau of Land Management (BLM). The Powder House presumably housed explosives which would have been utilized during RDM operations.

1.1 PROJECT PURPOSE AND OBJECTIVES

The goal of this Powder House assessment is to safely characterize the extent of potential explosives within the structure, surrounding areas and assess the potential risk to human health and the environment. The project consists of clearing the vegetation and debris, demolition of the structure, identifying and mitigating any explosive hazards in or around the structure, and addressing potential release of explosive compounds to the environment.

The activities will be implemented by an experienced WESTON Senior Unexploded Ordnance Supervisor (SUXOS) and an experienced scientist who is an Alaska Department of Environmental Conservation (ADEC) qualified sampler. Should explosive materials be identified a safe perimeter will be established and once an appropriate safe course of action has been determined the removal of these materials will be accomplished by experienced WESTON UXO personnel If explosive material is not visually identified there is the potential that hazardous materials may have been released from the aging chemical stores if they were indeed left in the structure. The SUXOS and scientist will inspect the building floor, conducting field screening, and obtaining soil samples for analytical testing to further characterize the site and to delineate potential soil impacts.

The assessment will result in recommendations for corrective actions or remedial alternatives that will lead to site cleanup and/or closure.

1.2 SITE BACKGROUND AND HISTORY

The RDM was established in 1933 to mine cinnabar deposits and produce mercury from the cinnabar ore. The mine was the largest of several mercury producing mines in Alaska, and for a short period of time one of the largest producers of mercury in the United States. The RDM was operated on and off until it was shut down permanently in 1971 due to poor economic conditions. A detailed history of the mine is included in the *Red Devil Mine Historic Source Area Investigation* (MACTEC, 2005).

The United States Environmental Protection Agency (EPA) conducted an inspection of the mine in 1971. Since that inspection, numerous waste removal actions, site investigations, and sampling activities have been performed. The mine was registered in 1987 under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (EPA identification AKD980495618).

The powder house structure is located at the RDM on a small overgrown road (Figure 2). The roof of the building has collapsed and the area is severely overgrown making observations and assessment of the hazards present at this structure difficult.

1.3 DOCUMENT ORGANIZATION

This document is organized into the following five sections:

- Section 1 provides a brief introduction and presents the project purpose;
- Section 2 provides a detailed description of the project tasks;
- Section 3 discusses the regulatory screening criteria for soils;
- Section 4 discusses record keeping, reporting requirements and project planning; and
- Section 5 provides references used to prepare this Work Plan.

2.0 PROJECT TASK DESCRIPTIONS

The following sections detail the tasks that will be completed for this project. The scope of work and individual task descriptions to be completed are presented below.

The BLM solicitation identifies four required tasks and one optional task:

Task 1 – Debris Removal and Onsite Disposal

Task 2 – Explosive Hazard Mitigation

Task 3 – Structure Interior Characterization

Task 4 – Deliverables

Task 5 – Soil Remediation (OPTIONAL)

2.1 SCOPE OF WORK

Task 1 - Debris Removal and Onsite Disposal

In order to inspect the interior of the building, the collapsed roof and other debris may need to be removed in order to allow the SUXOS safe access to the structure. Marsh Creek will perform the initial debris removal from the structure and the nearby area surrounding the former Powder House remotely through the use of cables and pulleys with equipment and personnel at a safe distance. Only after inspection of the structure by the SUXOS will heavy equipment be utilized around the building.

The structural debris that is removed will be buried at a location near the former structure. The actual location of where the debris will be buried will be determined in the field. The chosen location will impose the least environmental impact to the area and will be GPS surveyed.

Task 2 - Explosive Hazard Mitigation

The activities will be implemented by an experienced SUXOS and scientist. These personnel possess the training, skills, and experience to identify any explosives, fuel or other chemicals that might present a hazard at the site. WESTON's personnel will be present onsite during all activities from initial site clearing through final demolition of the structure.

WESTON's personnel will conduct an initial inspection of the area to identify hazardous materials prior to initiation of any site activities. WESTON understands that following this initial inspection of the site, Marsh Creek operators will initiate brush clearing and initial debris removal. After the initial debris removal including the removal of the roof, WESTON personnel will observe the interior of the structure to identify any explosives or other hazardous materials present. WESTON personnel will work closely with the Marsh Creek supervisor to ensure that site activities are conducted safely and explosive hazards are mitigated.

Should explosive materials be identified a safe perimeter will be established and once an appropriate safe course of action has been determined the removal of these materials will be accomplished by experienced WESTON UXO personnel.

Task 3 - Structure Interior Characterization

There is the potential that hazardous materials may have been released from the aging chemical stores if they were indeed left in the structure. The structure interior will be characterized to determine whether hazardous materials may have been released and impacted the floor and subsurface beneath the structure.

WESTON's SUXOS and scientist will characterize the interior of the structure. The characterization will include visual inspection of the building floor, conducting field screening, and obtaining soil samples for analytical testing to further characterize the site.

WESTON personnel will initially visually inspect the floor of the structure after debris and all hazards have been removed noting any evidence of a release such as staining or discoloration. These observations will be documented in the field log book and photographs will be taken.

Analytical samples will be collected to characterize the interior of the structure for explosives. Field screening the soil on the floor of the structure for potential Petroleum, Oil and Lubricant (POL) impacts will also be conducted using a photoionization detector (PID) in accordance with standard practices. There is no information that suggests that there is POL contamination however it is likely that fuel was stored on site. Field screening of these soils will be conducted by using a disposable scoop to place the surface soil sample from the floor of the structure into freezer bags. The soil sample will be heated to a temperature required in Title 18 Alaska Administrative Code (AAC) Chapter 78, and then screened with the PID. WESTON will record these readings and utilize these results to determine potential POL impacts. If evidence of a release is identified, analytical samples will be collected.

Multi Increment (MI) sampling of the soil will be conducted within the footprint of the approximately 20 feet by 30 feet structure.

MULTI INCREMENT SAMPLING STRATEGY

The footprint area will be divided into one approximately 600 ft² decision unit (DU) and the DU will be divided into four equally sized sample increment cells where MI sampling will occur (Figure 3).

Primary Sampling Approach

Sampling within the DU will be conducted to collect 40 increment samples, ten from each sample increment cell (Figure 3). One analytical sample will be submitted per analysis by the laboratory from the DU. Incremental sample locations will be determined using the following steps as part of a systematic random sampling strategy:

1. The DU will be divided into a minimum of four sample increment cells, as presented in Figure 3.
2. Each sample increment cell will be broken down into 10 equally sized sub-cells where sampling will occur, as presented in Figure 4. In order to collect samples in a systematic random fashion, each sub-cell will again be divided into 6 equally sized areas and labeled 1 - 6 (Figure 4). A 6-sided dice will be rolled to determine from which sample area to collect an incremental sample (i.e., if a 2 is rolled, the incremental sample will be collected from sample area #2). All samples will be collected from the approximate center points of each sample area. This process will be repeated 10 times per sample increment cell and a total of 40 times per DU.
3. Once the sample increment locations for a given cell are selected, samples will be collected at random depths between the ground surface and 1.0-foot below ground surface (bgs).

Both volatile and non-volatile analytical analysis will be performed on the soil samples collected. Therefore, samples for volatiles will be collected before non-volatiles at each area to reduce contaminate loss due to volatilization. Procedures for sample collection are provided below.

Since there will only be one DU it will be designated as the location where a duplicate/triplicate sample will be collected and submitted for laboratory analysis for quality assurance. Duplicate and triplicate sample locations will be selected at a minimum of one-half the width of the sample area from the primary sample location. Duplicate/triplicate sample increment depths will be selected randomly using the method described above. Triplicate sample results will be used to calculate the 95% upper confidence limit (UCL).

Volatile Sampling Procedure

GRO/BTEX

- A disposable plastic syringe or similar "coring" type soil sampling device will be used to collect 2-5 grams of soil (avoiding rocks and clumps) from each sample increment location. The sample will be placed directly into a 250-500 milliliter pre-tared amber bottle with methanol preservative. The sampler will be sure to immediately replace the Teflon lined lid for the bottle after each sample collection. In order to minimize the potential loss of volatiles, sample increments must be collected with minimal disruption and as quickly as possible to minimize exposure to ambient air.
- A second unpreserved portion will be collected concurrently at each location in the same manner for percent moisture determination for the volatile analysis.
- Proceed to the next sample increment location and repeat the collection process, extruding the soil increments into the same (1) methanol preserved bottle and (2) unpreserved jar. The total sample volume from all the sample increments within the DU should be 60 – 150 grams.

- The volatile samples are required to be preserved with a minimum of 1:1 ratio of sample preservative (methanol) to sample material (1 gram soil to 1 milliliter methanol). Additional soil mass is preferred as long as it is completely submerged by the methanol.
- Once all the samples have been collected they will be place in coolers with gel ice, trip blanks, temperature blanks and Chains of Custody (COCs) for shipment to Test America Laboratories, Inc. (laboratory) in Anchorage, AK.

Non-Volatile Sampling Procedure (Performed by WESTON in the field)

DRO/RRO and Explosives

- A steel spoon or disposable scoop will be used to collect 30 – 60 grams of soil (avoiding rocks and clumps) from each sample increment location within the DU and sieved through a 2 mm screen (#10 sieve) directly into a clean plastic bag within a five gallon bucket.

- Once all the increment samples have been collected within the DU, the plastic bag containing the soil sample will be tied shut and gel ice packs, temperature blanks, and COCs will be placed inside the bucket with the soil sample. A lid will be placed over the five gallon bucket and sealed shut for shipment to the laboratory.

Non-Volatile Sub-Sampling Procedure (Performed by Test America Laboratories)

- One final sample mass per DU consisting of 40 to 50 grams will be sub-sampled and analyzed by the laboratory. Sub-sampling will be conducted following the Alaska Department of Environmental Conservation *Draft Guidance on Multi Increment Soil Sampling* (ADEC 2009c) and *Technical Memorandum for Environmental Laboratory Data and Quality Assurance Requirements* (ADEC 2009d), both dated March 2009.

- Laboratory sub-sampling and extraction weights will be recorded by the laboratory and included in the final reported data package.

In addition to the MI sampling two locations within the approximately 20 feet by 30 feet structure will be selected for additional sampling. At these locations, three samples will be obtained: one between 0 to 6 inches below ground surface (bgs), one at 2 feet bgs and one at 10 feet bgs or depth of refusal. It should be noted that WESTON does not intend to mobilize a drill rig to the site and thus the deeper soil samples will be obtained with a hand auger. If the materials will not allow the use of a hand auger, a sample will be obtained from as deep as possible using this equipment. If staining is observed, locations will be selected based on the staining and a maximum of 5 locations are anticipated to be sampled utilizing the same sample strategy as described above. Additional samples may be required based on subsurface soil observations (i.e. staining, discoloration, etc). Samples will be shipped to Test America Laboratories and analyzed for diesel range organics (DRO), residual range organics (RRO),

gasoline range organics (GRO), benzene, toluene, ethylbenzene, xylenes (BTEX), and explosives.

Task 4 - Deliverables

Marsh Creek and WESTON will prepare the deliverables requested by the BLM including the Final Project Plans prior to mobilization. Following implementation and demobilization, a Draft Report and Final Report will be prepared.

Task 5 - Soil Remediation (OPTIONAL)

This is an optional task that might be required if impacts are identified that must be addressed. WESTON will provide a SUXOS and a scientist to assist with the remedial actions. If impacted soil is discovered during the 2010 assessment, alternatives will be discussed over the winter and cleanup will be implemented during the summer of 2011.

2.2 SITE CLEARANCE AND MOBILIZATION

All equipment and personnel will be mobilized via cargo airline. Equipment will be staged at the RDM for the duration of field activities. Personnel will be housed in the community of Red Devil, and transported to and from the site each day. Permits, site access permissions, and other administrative requirements will be obtained prior to mobilization. It is anticipated that a large Remedial Investigation will be on-going at the RDM during field activities. Coordination with other parties at the RDM will be maintained throughout field activities to ensure parties complete contract requirements with minimal interference.

2.3 EXPLOSIVE HAZARD ASSESSMENT

In accordance with the task specific Health and Safety Plan (Appendix A), all on-site personnel will abide by strict safety procedures while undergoing the RDM Powder House assessment and any surrounding operations. Throughout the project a SUXOS will be present and will lead the investigation, acting as the site Field Safety Officer (FSO), controlling any safety decisions deemed necessary during the initial investigation and upon discovery of explosives on site. The SUXOS will restrict and control access to the Powder House area to a minimum of authorized personnel necessary to safely conduct the assessment. This section outlines the standard explosives safety practices the SUXOS will utilize throughout the project and the characteristics of potential explosives that may be encountered on site.

An analysis of all operations involving explosives will be completed with a view towards reducing personnel and the quantity of explosives that could be subjected to an incident. A minimum number of personnel will be exposed for a minimum time to the smallest quantity of explosives, consistent with safety and efficiency. At least one person will be made available near the hazard area during explosives operations to give warning and assist in rescue activities in the event of an accident.

The following apply in the establishment of personnel limits:

- Prohibit tasks not necessary to the explosives operation within the immediate vicinity of the hazard.
- Prohibit unnecessary personnel from visiting the operation.
- Prohibit anyone from working alone during the assessment and disposal operations. In an emergency where the compromising of safety is warranted by the seriousness of the incident, and adequate EOD personnel are not available, assistance should be requested from knowledgeable personnel preferably with an explosives background.

Characteristics of Dynamite

Commercial companies typically have their own products which usually differ depending on their application. These same basic products will be depicted by different trade names. Commercial explosives are intentionally produced in varying strengths to accomplish, but not exceed, specific tasks, and are in a constant state of change to meet the changing demands of industry. In general, commercial explosives are mixtures based on nitroglycerin, nitrostarch, ammonium nitrate, or composites of these. Also widely used in the commercial field are sprengel (slurries explosives), that are mixed on the job site.

Dynamite is a generic term for a wide variety of high explosive formulations containing a blend of liquid and solid nitrate esters mixed with solid oxidizers and carbonaceous fuels. Dynamite variations can be produced in sizes ranging from 22 to 127 millimeters (0.88 to 5.00 inches) in diameter and 101 to 813 millimeters (4.00 to 32.00 inches) in length. Primary ingredients within the explosive can be grouped as: nitroglycerin, nitroglycol, nitrocellulose, oxidizing salts, and fuel. These ingredients combined with special purpose compounds (antacid, sodium chloride, and other proprietary substances) provide the basis for a family of explosives which have detonation velocities ranging from 2,000 to 8,000 meters per second (6,500 to 26,000 feet per second).

Although the term dynamite is generally accepted as a type of explosive containing nitroglycerin and nitroglycol as the sensitizer, there are several other type explosives which use the term in their designations or are used as a substitute for dynamites but contain neither.

Dynamite Identification

Commercial dynamites are packaged in a variety of cartridge types and sizes. The wide range of dynamite and cartridge types with the rapidity in which the products change makes the attempt to produce a detailed study problematic. Types of cartridges or packages other than described below may be encountered. The labeling constitutes a major source of identification of the products. Since February 12, 1971, Part 181 of Title 26 of the Code of Federal Regulations has required that each manufacturer of explosives legibly mark the outside container, if any, identifying the manufacturer, location, date, and shift of manufacture. Explosives manufacturers use codes for identification. In some codes, the date of manufacture can be read directly, in

others a special code key is required to interpret the markings. Attachment 1 shows samples of some typical markings, and common dynamite packaging styles are as follows:

- Plain Shells
- Perforated Shells
- DOT 23 G Shells
- Plastic Cartridges

The name of the manufacturer and date-plant-shift code are required on all dynamite cartridges manufactured in the U.S. after February 12, 1971. Manufacturers have adopted various methods of coding the date-plant-shift code required. This coded information may be stamped anywhere on the cartridge and is normally found as a single line in closed-up form. The color of the label printing is insignificant. There are no restrictions regarding color, and black is the color used most often. Attachment 1 provides some typical examples of dynamite labeling and coding.

Deterioration

The wide variety of ingredients used as fillers in commercial dynamites, with the wide variety of possible storage histories, makes the exact form of deterioration difficult to predict. Signs of deterioration include hardness, discoloration, excessive softness, leaking that has proceeded to the extent of saturating the sawdust in shipping cartons, and staining of shipping cartons. Since the explosive salts used in dynamite have a tendency to absorb moisture from the atmosphere, there is possibility that liquid exuding from a cartridge is merely a water solution of the salts. The determinations of the liquid exudates are difficult in the field. One must assume the presence of nitroglycerin from a safety standpoint when encountering these alterations.

2.4 SAMPLE SUMMARY AND MANAGEMENT

As stated in Section 2.1, along with the MI sampling a minimum of six analytical surface and subsurface soil samples will be collected from the interior of the structure, assuming bedrock is greater than 5 feet bgs and subsurface soil samples can be collected with a hand auger. All samples will be analyzed for GRO, DRO, and RRO by Alaska State Method AK101, AK102, and AK103. Samples will also be analyzed for BTEX by EPA Method 8021B, and explosives by EPA Method 8330B. Field quality assurance and quality control (QA/QC) samples will be collected and analyzed including field duplicates, trip blanks, and matrix spike/matrix spike duplicate (MS/MSD) samples. Chain-of-Custody documentation will be prepared and included with the final report.

2.5 WASTE MANAGEMENT

Potential wastes include both general refuse and investigation-derived waste (IDW). IDW accumulated during sampling and investigation activities will include the following:

- general refuse (e.g., paper towels, plastic bags, plastic water containers);

- expended personal protective equipment (PPE);

No hazardous waste is expected to be generated during investigation activities. Project waste that is generated will be transported from the site and disposed of at an approved landfill.

3.0 REGULATORY SCREENING CRITERIA

3.1 SOILS

Soil sample analytical results will be compared to the ADEC Method Two Soil Cleanup Levels (Table 1).

Table 1

Analytic Parameter	Soil - Human Health Screening Criteria	
	ADEC Soil (Under 40 Inch Zone) Cleanup Level[1]	ADEC Soil (Migration to Groundwater) Cleanup Level[2]
Explosives SW846 8330B (mg/kg)		
1,3 - Dinitrobenzene	7.1	0.02
1,3,5 - Trinitrobenzene	2,800	19
2,4,6-Trinitrotoluene (TNT)	44	0.49
2,4-Dinitrotoluene	8.8	0.0093
2,6-Dinitrotoluene	8.9	0.0094
2-Amino-4,6-dinitrotoluene	20	0.029
2-Nitrotoluene	26	0.025
3-Nitrotoluene (1-Methyl-3-nitrobenzene)	1,500	4.9
4-Amino-2,6-dinitrotoluene	19	0.029
4-Nitrotoluene	350	0.34
HMX (Octogen)	4,600	49
Nitrobenzene	51	0.094
Nitroglycerine	300	0.22
PETN (Pentaerythrite-tetranitrate)	---	---
RDX (Cyclonite)	72	0.04
Tetryl (Methyl-2,4,6-trinitrophenylnitramine)	400	4.5
Petroleum Hydrocarbons (mg/kg)		
GRO AK101	1,400	300
DRO AK102	10,250	250
RRO AK103	10,000	11,000
BTEX 8021B (mg/kg)		
Benzene	150	0.025
Ethylbenzene	10,100	7
Toluene	8,100	6.5
Xylenes (total)	20,300	63

1 *- Regulatory limits are defined by Alaska Department of Environmental Conservation (ADEC), 18 AAC 75, Method 2, Under 40 Inch Zone, Lowest of ingestion& inhalation; (revised 9 October 2008).*

2 *- Regulatory limits are defined by ADEC, 18 AAC 75, Method 2, Migration to Groundwater; (revised 9 October 2008).*

mg/kg – milligrams per kilogram

NA – Not Analyzed

--- no available value for this category

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4.0 RECORD KEEPING, REPORTING, AND PROJECT PLANNING

This section discusses record keeping of all field activities and reporting efforts.

4.1 RECORD KEEPING

Field crews will maintain field records sufficient to recreate all sampling and measurement activities. The information shall be recorded with indelible ink in a permanently bound notebook with sequentially numbered pages. These records shall be archived in an easily accessible form and made available to the BLM upon request.

The following information shall be recorded for all field activities: (1) location, (2) date and time, (3) identity of people performing activity, and (4) weather conditions. The following shall also be recorded for field measurements: (1) the numerical value and units of each measurement, and (2) the identity of and calibration results for each field instrument.

Photo documentation of on-site activities will be maintained on a daily basis and will be sufficient to capture important field events.

4.2 REPORTING

Once the fieldwork is completed and final analytical results are received, a report detailing field activities will be produced. The report will include project background, a description of field activities, all field and laboratory test results, site maps, soil boring logs, photographs, field observations, and a copy of the field notes. Additionally, any deviations from the work plan, an interpretation of findings and conclusions, and recommendations for further assessment and/or corrective actions will be included.

4.3 QUALIFIED PERSON

As required by 18 AAC 75.355 this characterization work plan has been prepared by a "Qualified Person". The individual(s) who will supervise field work and collect soil samples for this project will also be "Qualified Person(s)". The Final Report will be prepared by a "Qualified Person" and will contain resumes of the "Qualified Persons" who participated in this project.

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5.0 REFERENCES

ADEC. 1999. *Ecoregions/Assessment Endpoint Project Technical Background Document for Selection and Application of Default Assessment Endpoints and Indicator Species in Alaskan Ecoregions*. June.

ADEC. 2002. *Underground Storage Tanks Procedures Manual, Guidance for Treatment of Petroleum-Contaminated Soil and Water and Standard Sampling Procedures*. 7 November.

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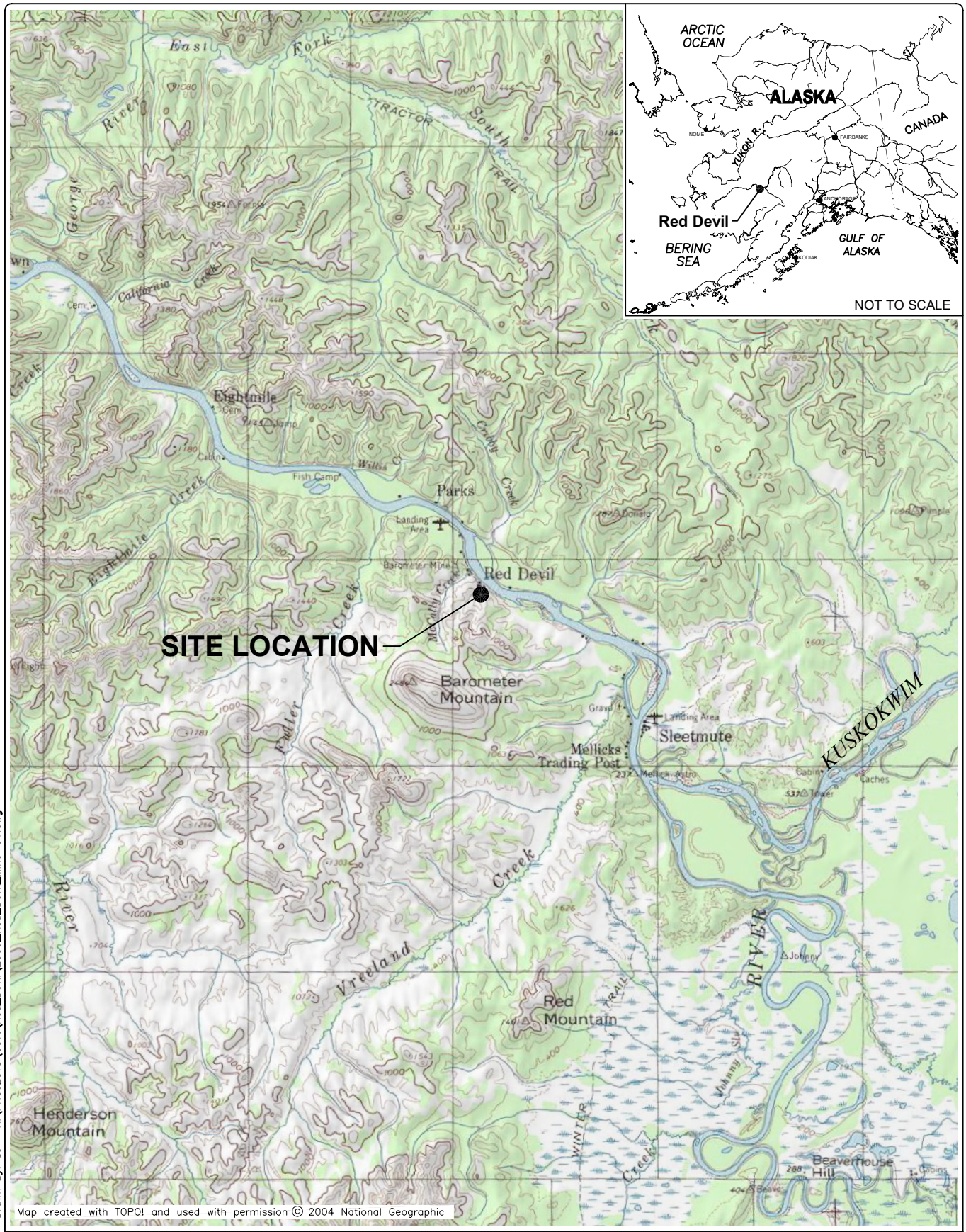
FIGURES



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SCALE (miles)

RED DEVIL MINE
SITE LOCATION MAP

Red Devil Mine, Alaska

Figure
1

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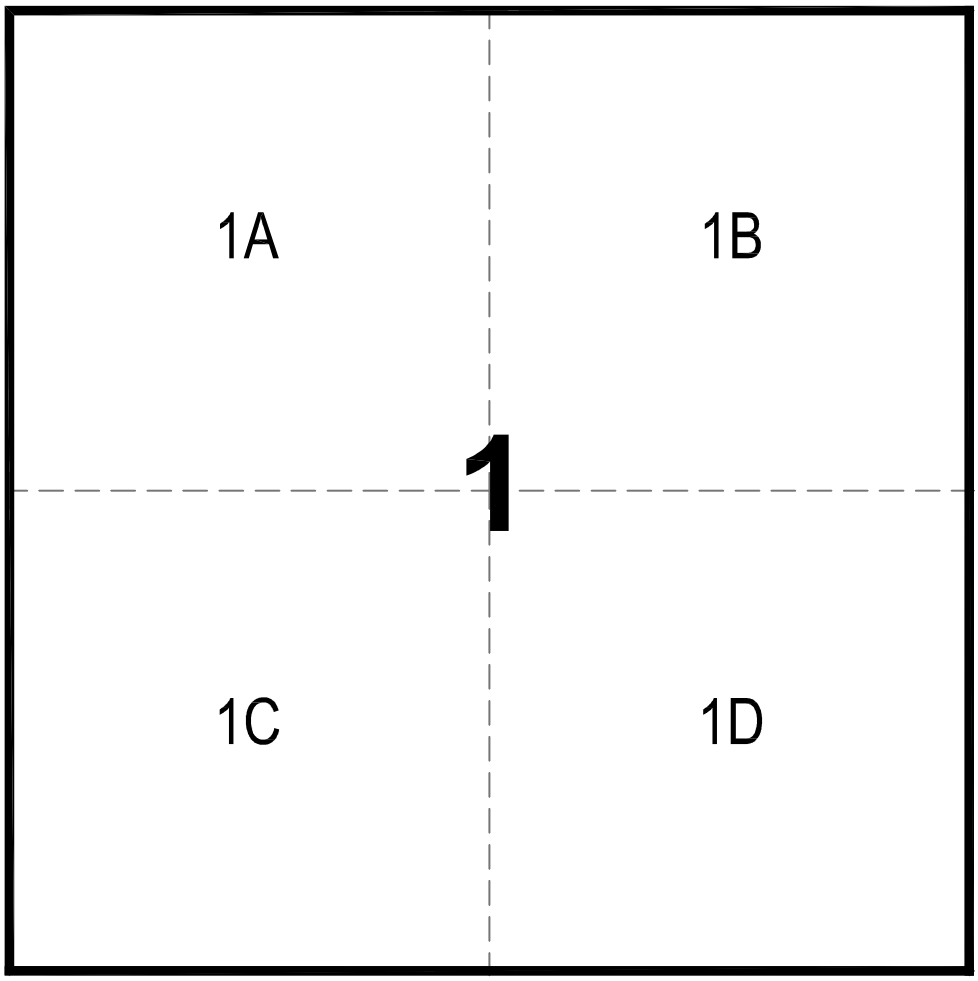
SITE LAYOUT MAP
Red Devil Mine, Alaska

Figure
2



LEGEND

Decision Unit

Sample Increment Cell

*Layout is approximated. Final layout will be determined in the field due to unknown field conditions and will comply with ADEC guidelines.

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SCALE (ft)

DECISION UNIT LAYOUT

Bureau of Land Management
Red Devil Mine, Alaska

Figure
3

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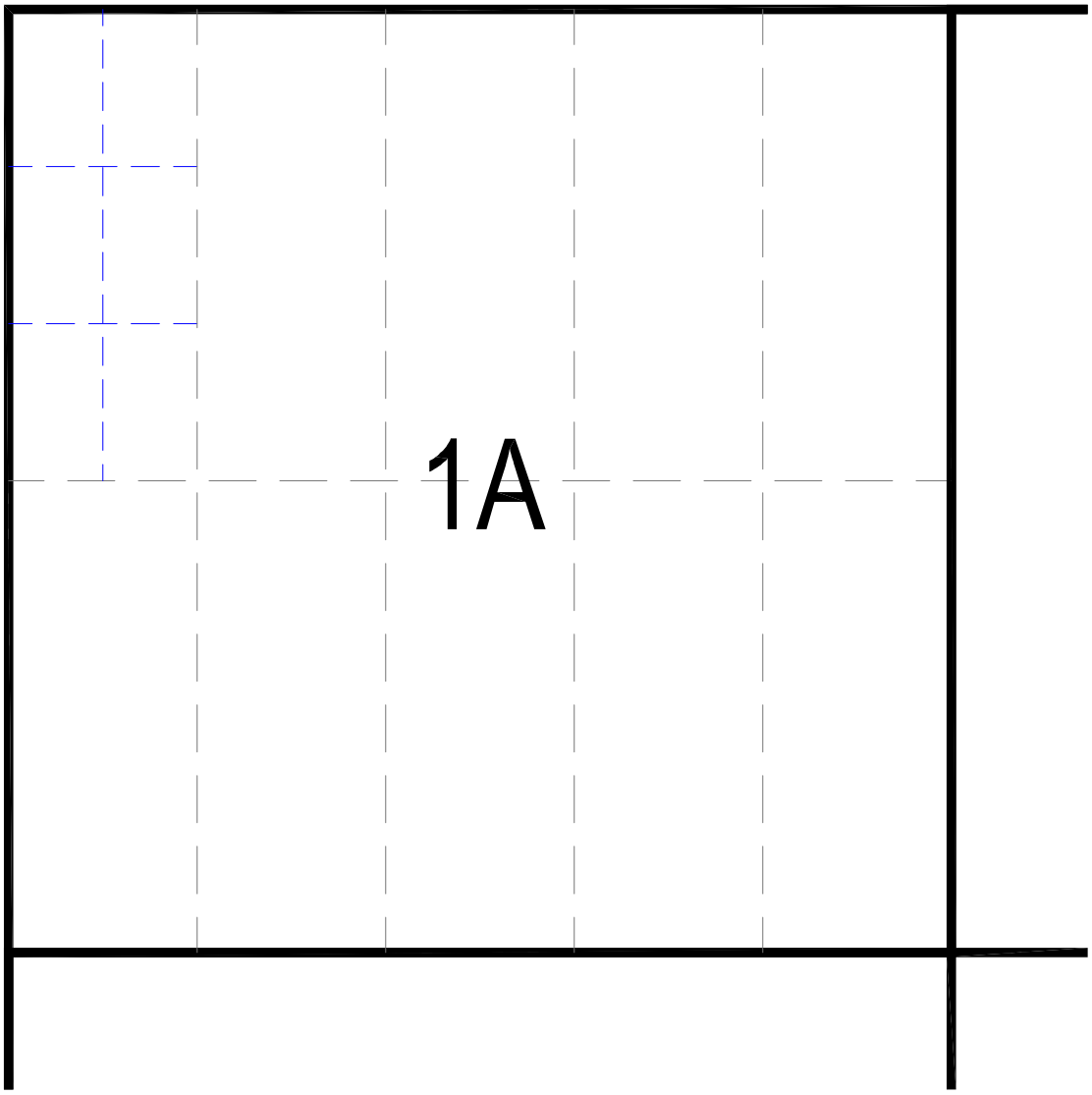


LEGEND

Increment Cell

Sub–Cell

Sample Area

*Layout is approximated. Final layout will be determined in the field due to unknown field conditions and will comply with ADEC guidelines.

0 10

SCALE (ft)

INCREMENT CELL SAMPLING LAYOUT

Bureau of Land Management

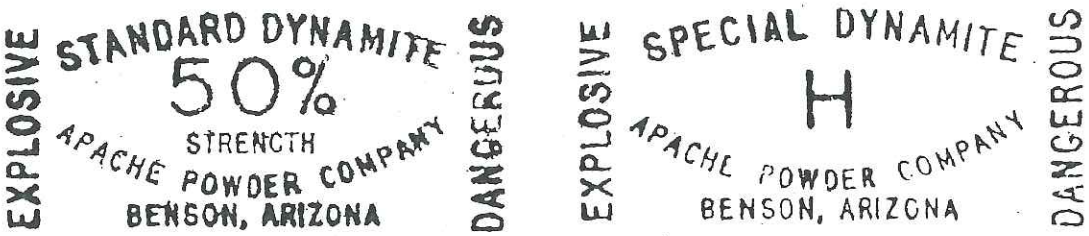
Red Devil Mine, Alaska

Figure

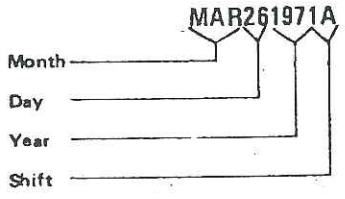
4

ATTACHMENT 1
Labeling Information

LOGO FOR IDENTIFICATION



TYPICAL DYNAMITE STICK LABELS



Date – Shift – Code

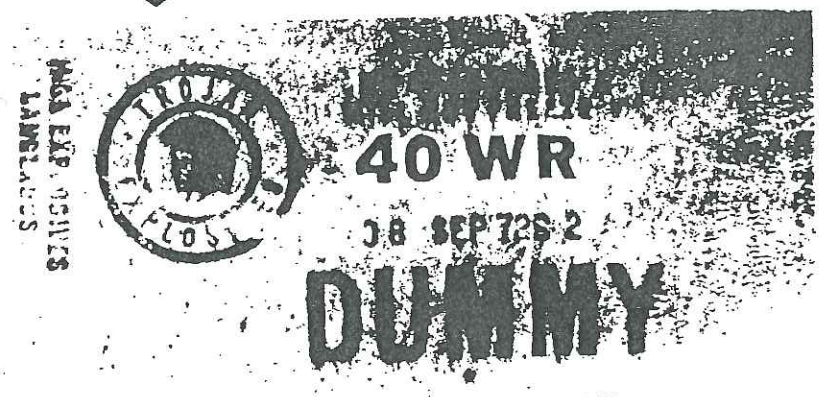
ESTAB. 1905

TROJAN EXPLOSIVES ®

TROJAN • U.S.POWDER

EXPLOSIVES TROJAN CHEMICALS

TYPICAL LOGOS FOR IDENTIFICATION



TYPICAL DYNAMITE STICK LABEL

24MAR71W2

Day
Month
Year
Plant
Shift

Date – Plant – Shift – Code

TROJAN has 8 plants manufacturing explosives:

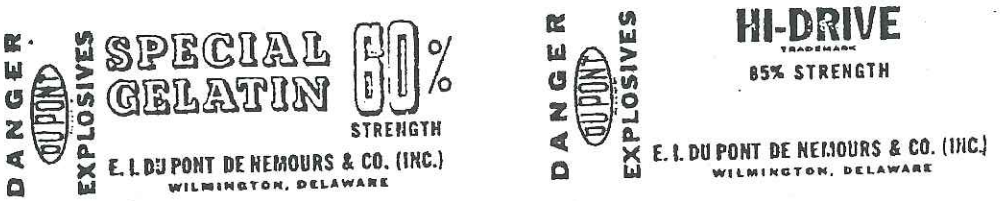
S – Seiple, Pennsylvania
M – Marion, Illinois
W – Wolf Lake, Illinois
U – Springville, Utah
T – Tacoma, Washington
B – Bridgeport, Texas
C – Columbus, Indiana
F – Forest, Ohio

3787/3-7

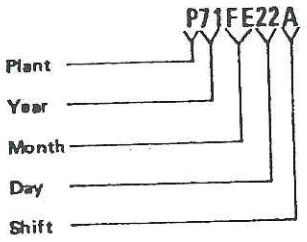
DU PONT

REG. U. S. PAT. OFF.

TYPICAL LOGO FOR IDENTIFICATION



TYPICAL DYNAMITE STICK LABELS



Plant – Date – Shift – Code

Du Pont has six plants manufacturing explosives:

S – Birmingham, Alabama
D – Du Pont Works, Washington
L – Louirers, Colorado
X – Seneca, Illinois
P – Potomac River Works, Martinsburg, West Virginia
L – Pompton Lakes, New Jersey
B – Barksdale, Wisconsin

LOGO FOR IDENTIFICATION

+ 0205107402

EXTRA DYNAMITE

60%
STRENGTH

HIGH EXPLOSIVES DANGEROUS
AUSTIN POWDER CO.

TYPICAL DYNAMITE STICK LABEL

APPENDIX A
Health & Safety Plan