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NAS CECIL FIELD
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EMAIL REGARDING MUNITIONS AND EXPLOSIVES OF CONCERN AT SITE 15, BUILDING
365 AND HANGAR 860 NAS CECIL FIELD FL
05/04/2011
BASE REALIGNMENT AND CLOSURE PROGRAM MANAGEMENT OFFICE SOUTHEAST

NAS Cecil Field
MEC Discussions: Site 15, Hangar 860, Building 365

-----Original Message-----

From: Sanford, Art F CTR OASN (EI&E), BRAC PMO SE [<mailto:art.sanford@navy.mil>]
Sent: Wednesday, May 04, 2011 4:46 PM
To: Vaughn-Wright.Debbie@epamail.epa.gov; Grabka, David
Cc: Davidson, Mark E CIV OASN (EI&E), BRAC PMO SE; Simcik, Robert;
Michael.Halil@CH2M.com
Subject: FW: MEC discussion at next meeting

Debbie,

In response to your request below about a MEC discussion at the meeting next week, Rob Simcik, Linda Klink (Tetra Tech), Kyra Donnel (CH2MHill), and Mike Halil compiled the following and attached information for Site 15, Building 365, and Hangar 860.

First it is important to note that the areas that have undergone Munitions Response are not former ranges. That is, munitions were not fired, detonated, etc. at these locations.

At Bldg 365 and Hanger 860, the recovered Munitions and Explosives of Concern (MEC) (defined as Unexploded Ordnance (UXO), discarded military munitions (DMM) and Munitions Constituents in concentrations sufficient to present an explosives hazard) was strictly in the form of DMM. That is, munitions items or devices containing energetic materials that were never expended, but inappropriately or inadvertently discarded intact. The energetic materials in these items remain fully encased. Also important to note is that the Munitions Debris (MD) recovered from these sites is the result of use elsewhere (e.g., upon an aircraft) and the expended item or component of the expended item was subsequently discarded at the Munitions Response Site (i.e., when removed from the aircraft).

Building 365: The list of identifiable types of MEC/MD found with major components is attached (Building 365 MC Evaluation.docx). Also attached is a Soil Analytical Summary Letter Report prepared by CH2M HILL documenting an evaluation of recovered MEC impact to the environment. Based on the letter report conclusions, the presence of MEC has not caused an adverse impact to site soil. Based on the completed evaluation and the consistent list of MEC recovered from the site, no additional evaluation is warranted at this time.

Hangar 860: The list of identifiable types of MEC/MD found with major components is attached (Hangar 860 MC Evaluation.docx). Also attached is a Project Completion Letter Report prepared by CH2M HILL documenting an evaluation of recovered MEC impact to the environment. Based on the letter report conclusions,

the presence of MEC has not caused an adverse impact to site soil. Based on the completed evaluation and the consistent list of MEC recovered from the site, no additional evaluation is warranted at this time.

Site 15: The list of identifiable types of MEC/MD found with major components is attached (Site 15 MC Evaluation.docx). Also attached is Appendix A-1 (with Figures 1-4) from the April 2010 SAP for RI prepared by TtNUS which includes a munitions constituents evaluation. Based on review of the evaluation and the list of items found, no changes to the evaluation are warranted at this time due to MEC only being recovered from within the area previously assessed.

The one aspect of the sampling program for all three sites that may pose a concern is that nitroglycerin was not analyzed for. Nitroglycerin is a constituent of common propellants contained in small quantities in items found at all three sites. The analysis for nitroglycerin is via an expanded reporting list of Method 8330 that was not run. The absence of the nitroglycerin analysis is discussed in Appendix A-1 for Site 15. Since nitroglycerin represents only a small fraction of the possible constituents present and no other analyzed constituents caused impacts to site soils it is reasonable that nitroglycerin is not present in concentrations to present a potential impact, however we do not have analysis to confirm. The EPA Industrial Regional Screening Level for nitroglycerin is 62 mg/kg. Though also not sampled for, nitrocellulose has an Industrial RSL of 1.8E+09 and there is no EPA-approved analytical method for this constituent.

The body of this email was put together by Mike and we all had a phone call this afternoon to make sure we are in agreement. It appears we have been addressing this issue during our investigation and we have the data to support our sites. There are two separate letter reports on Building 365 and Hanger 860 that are too large for me to send on this email and will be sent separately. This is on the agenda for next week so we can discuss it then and we will be ready to answer any questions.

Thanks,

Art Sanford

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Site 15

MEC

US Mine, Fuze, Antitank, Practice M604 – There is a primer and smoke charge contained in fuze. Composition is 2.95 g black powder (potassium nitrate, charcoal, sulfur, graphite), PA#100 1.62 g (lead azide and RDX), and smoke 262.3 g. Fuze is steel.

20mm, Practice, MK5 – Packed with an inert filler. Steel casing.

Photoflash M112 – Contains potassium perchlorate, and black powder (potassium nitrate, charcoal, sulfur, graphite). Used in steel casing.

Flare, MK4 – Contains strontium nitrate, potassium perchlorate, aluminum case, percussion primer, smokeless powder (magnesium powder, sodium nitrate, vinyl alcohol), illuminant composition (sodium nitrate, magnesium powder, binder), and first fire composition (barium chromate, boron amorphous powder). Aluminum casing.

20mm HEI M56 (live) – HEI stands for high explosive incendiary. This item contains an explosive charge (RDX) and incendiary charge (90% strontium peroxide, 10% calcium resinate) in addition to the propellant (nitrocellulose/nitroglycerin). Casing is thin-walled steel.

Bomb blu-26 – Contains 85 g of cyclotol also known as composition B (40% TNT and 60% RDX) with aluminum bodies. Aluminum casing embedded with steel fragmentation balls.

MD/MDAS

Small Arms – Composed of lead 85%, antimony, copper, zinc also may be present. Cartridge case is brass.

30mm TP T328 – TP stands for target practice indicating an inert projectile.

Signal, Illumination, White Star, M127 - The illumination component consists primarily of magnesium powder and sodium nitrate. Aluminum launching tube.

Smoke Grenade - The smoke grenade contains a primer (iron oxide, titanium, zirconium) and filler (terephthalic acid for the M83 and smoke compositions containing metallic salts for the M18) that are substantially consumed when expended (test for aluminum, barium, copper, strontium). Sheet metal grenade body.

MK2 impulse cartridge - Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release. Aluminum body.

37mm HE M54 – Contains M2 powder, black powder, tetryl bursting charge. Steel casing.

40mm Mk 3 – Contains TNT, manganese or barium nitrate, diphenylamine, manganese, nitrocellulose, potassium nitrate. Steel casing.

57mm M306 – Contains 250g TNT, black powder. Steel casing.

2.75" Rocket Fuze, M423 – composition B-4 (60/39.5/0.5 RDX/TNT/calcium silicate). Motor is a light weight alloy. Casing is either steel or aluminum.

Booby Traps - The Booby Trap Simulator contains black powder (potassium nitrate, charcoal, sulfur, graphite), whistle composition (potassium perchlorate, sodium salicylate, gum red), and scratch composition (potassium chlorate, antimony sulfide, dextrin) that is substantially consumed when expended (sample for antimony).

5" Mk 33 Rocket Flare – Contains magnesium, teflon, and rubber binder. Steel cylinder.

SUPPLEMENTAL HISTORICAL DATA – CHEMICAL CONTAMINATION

The following provides information used to develop the conceptual site model and support the data quality objectives for munitions and explosives of concern (MEC) Remedial Investigation (RI) at Site 15. The evaluation is used to support that only MEC investigation is necessary for the remedial investigation; investigation of MC is not required at this time because sufficient investigation and remediation of chemical contaminants at Site 15 have been conducted. (However, if MEC or MD items are found outside of the area investigated for chemical contaminants, further evaluation of the need for MC investigation may need to be conducted in the future).

The remedial action was conducted in 2008 and 2009 and included removal of soil contaminated with polycyclic aromatic hydrocarbons (PAHs), metals, and total recoverable petroleum hydrocarbons (TRPH) from 17 excavation areas (A to Q). Based on the findings of a MEC Preliminary Assessment/Site Inspection (PA/SI) conducted in 2007 (CH2MHill, 2007) MEC removal was necessary before soil excavation activities for the remedial action could proceed. As part of the remedial action, tree and vegetation clearance and clearance for MEC were conducted in portions of the site prior to soil excavation.

Various investigations of chemical contamination were conducted and the results were presented in the RI Report (ABB-ES, October 1997). The areas of contamination at Site 15 are associated with the ordnance disposal area and old skeet and trap ranges. Chemical contamination was found associated with these sources as well as forest burn activities. Contaminants of Concern (COCs) were identified and the extent of contamination determined. The Record of Decision (ROD) (Tetra Tech, 2008) specified removal of contamination soil to meet current land use and to prevent unacceptable ecological exposure.

Soil sampling location figures supporting this evaluation are attached (Figures 1, 2, and 3) and show the extent of the comprehensive chemical investigation at Site 15. PAHs and lead contamination, respectively, are likely the result of clay pigeons/forest burn and lead shot from the skeet and trap operations. The extent of lead and PAH contaminated soil was delineated and contaminated soil excavated to meet current land use requirements. Similarly, the extent of TRPH contaminated soil has been delineated and excavated to meet current land use. Environmental investigations show that other organic compounds, dioxins, perchlorate, nitroaromatics, and other Target Analyte List (TAL) metals are not COCs. Although nitroglycerin (propellant) has not been investigated, soil in the area where propellant would be expected (reportedly rocket propellant was reportedly placed on the ground, ignited, and presumed to be consumed) in the area of the burn chamber was removed during the 2008/2009 soil removal effort. Groundwater concentrations were not at levels of concern, although note that one monitoring well remains on site (see Figure 4) to further assess arsenic.

REFERENCES

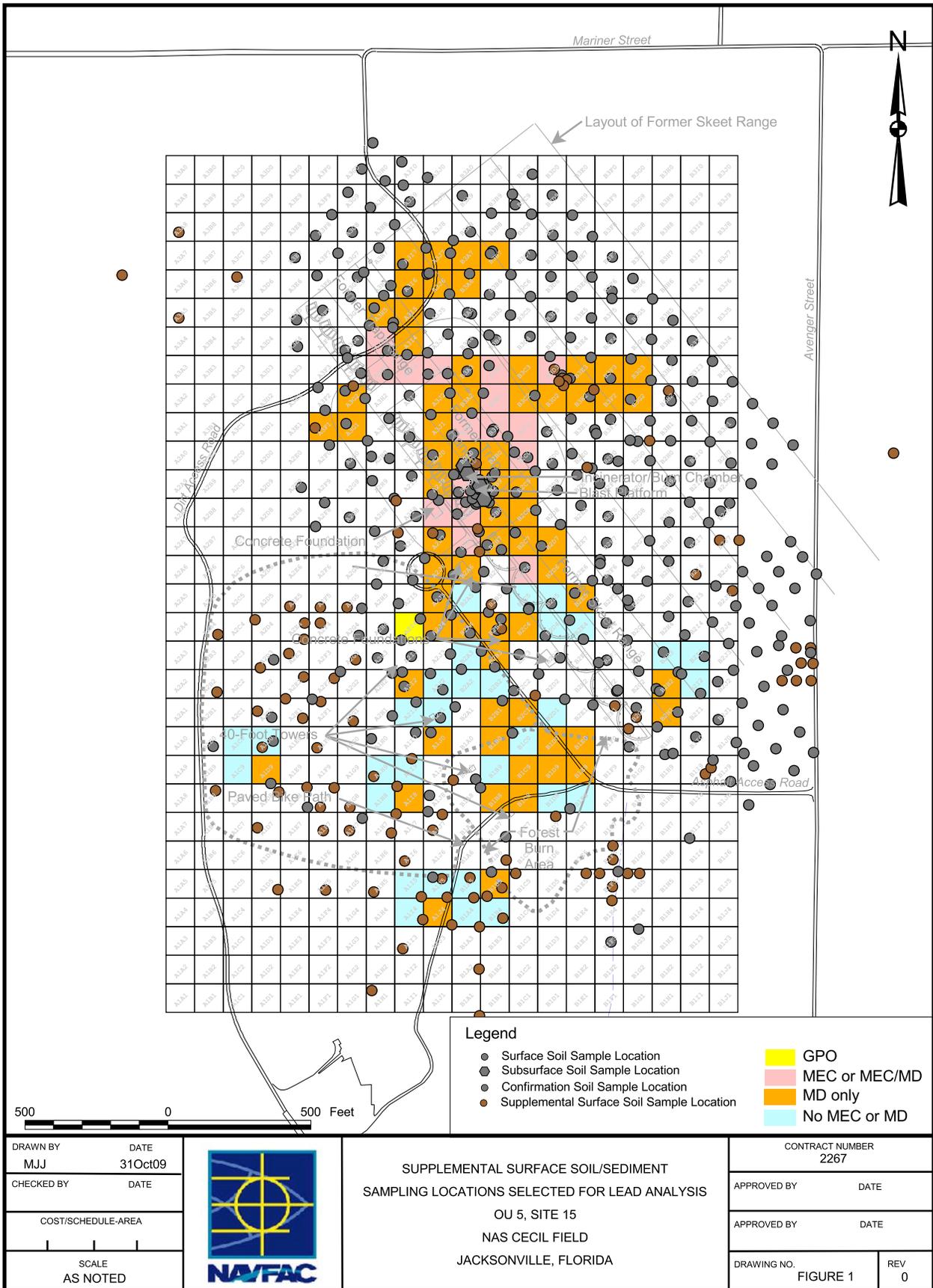
ABB-ES (ABB Environmental Services, Inc.), October 1997. Remedial Investigation, Operable Unit 5, Sites 14 and 15, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for Naval Facilities Engineering Command, Southern Division, North Charleston, South Carolina.

AGVIQ-CH2MHill (AGVIQ-CH2MHill Constructors, Inc. Joint Venture III), August 2009. Remedial Action Completion Report – Soil Removal Action for Operable Unit 5, Site 15, Blue 10 Ordnance Disposal Area, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for Naval Facilities Engineering Command, Southern Division, North Charleston, South Carolina. [DRAFT]

CH2MHILL, February 2007. Preliminary Assessment/Site Inspection Report for Past Use of Munitions and Explosives of Concern for Blue Ordnance Disposal Area (Site 15), Former Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for Naval Facilities Engineering Command, Southeast.

Tetra Tech, June 2008. Record of Decision for Operable Unit 5, Site 15, Blue 10 Ordnance Disposal Area, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for Naval Facilities Engineering Command, Southern Division, North Charleston, South Carolina.

Tetra Tech, August 2009. Remedial Action Completion Report for OU5, Site 15, Naval Air Station Cecil Field, Jacksonville, Florida. [DRAFT].

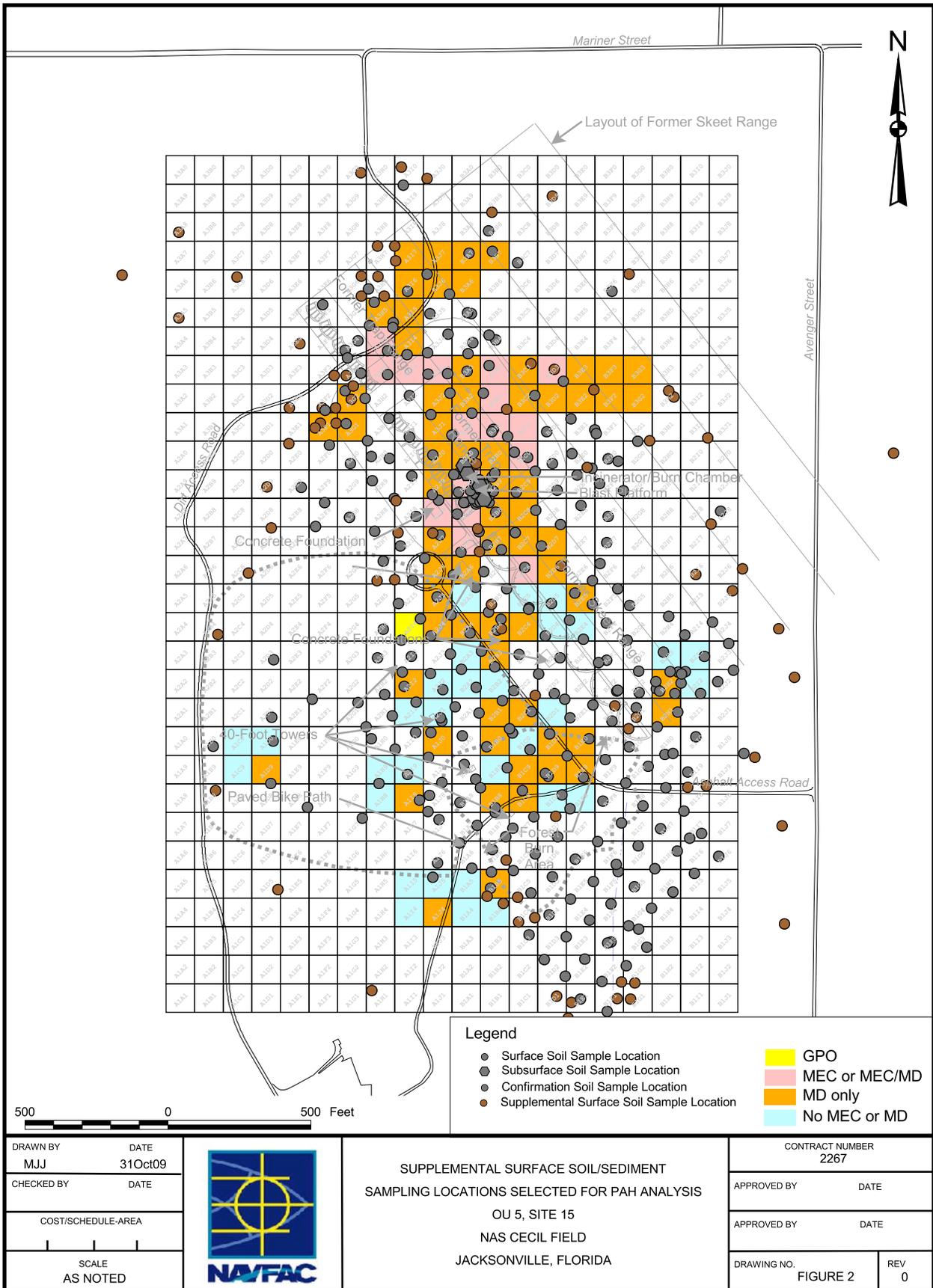


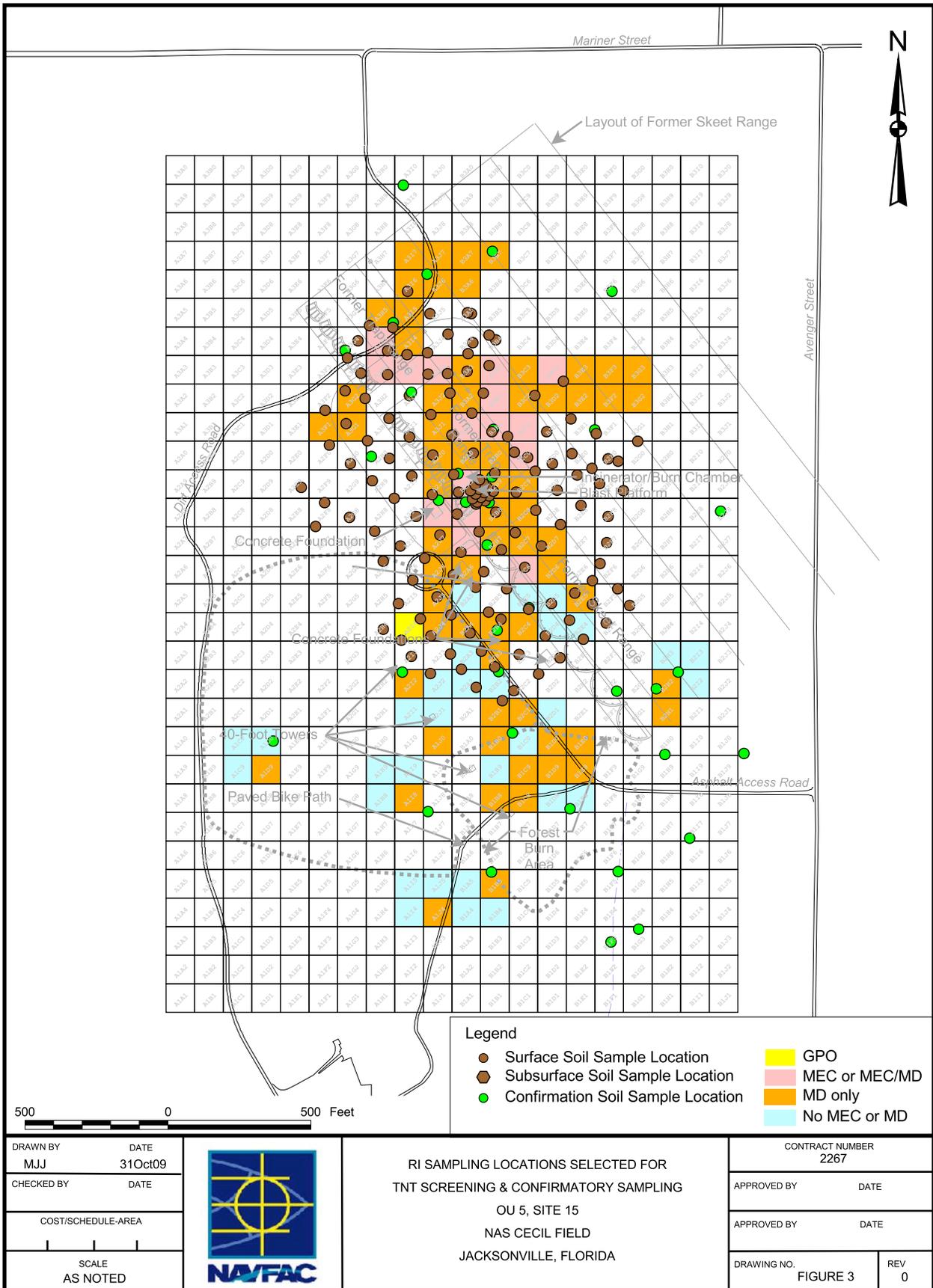
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COST/SCHEDULE-AREA	
SCALE AS NOTED	



**SUPPLEMENTAL SURFACE SOIL/SEDIMENT
 SAMPLING LOCATIONS SELECTED FOR LEAD ANALYSIS
 OU 5, SITE 15
 NAS CECIL FIELD
 JACKSONVILLE, FLORIDA**

CONTRACT NUMBER 2267	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV 0



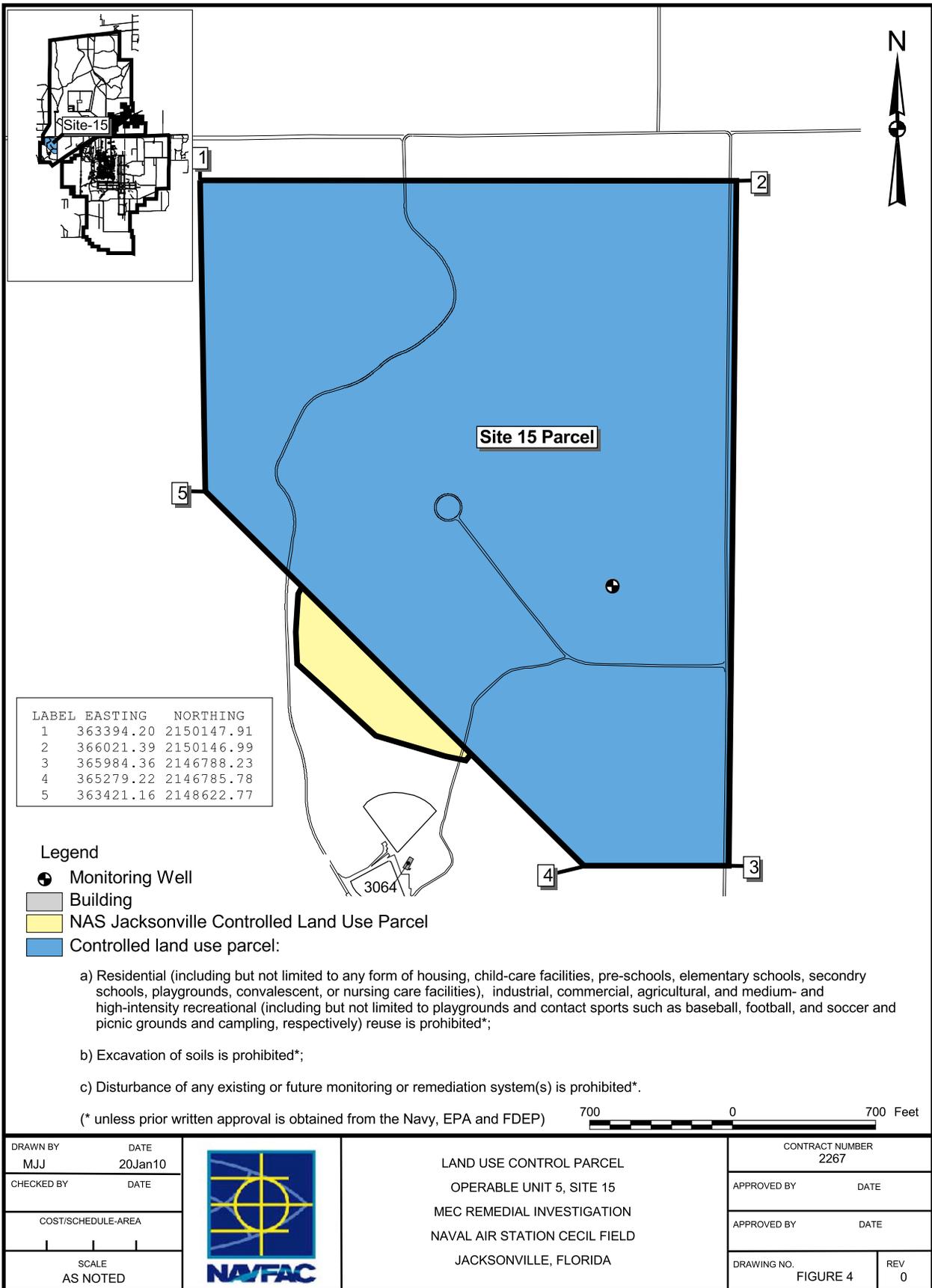


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COST/SCHEDULE-AREA	
SCALE AS NOTED	



RI SAMPLING LOCATIONS SELECTED FOR
TNT SCREENING & CONFIRMATORY SAMPLING
OU 5, SITE 15
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 2267	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3	REV 0



Building 365

MEC

Mk 11 Mod 1 TP 20-MM Cartridge – TP stands for target practice indicating an inert projectile. An electric primer and ignition charge ignites the double-base propellant (nitrocellulose/nitroglycerin) to expel the inert projectile. Casing is thin-walled steel.

Mk 11 TP 20-MM Cartridge – TP stands for target practice indicating an inert projectile. An electric primer and ignition charge ignites the double-base propellant (nitrocellulose/nitroglycerin) to expel the inert projectile. Casing is thin-walled steel.

Mk 2, Cartridge Impulse- Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release. Aluminum body.

Mk 56 HEI 20-MM Cartridge – HEI stands for high explosive incendiary. This item contains an explosive charge (RDX) and incendiary charge (90% strontium peroxide, 10% calcium resinate) in addition to the propellant (nitrocellulose/nitroglycerin). Casing is thin-walled steel.

Mk 8, Cartridge Impulse - Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release.

U.S. Bomb, Signal Cartridge, Mk 4 Percussion primer, smokeless powder (nitrocellulose/nitroglycerin) and red phosphorous composite to produce signal.

U.S. Projectile, 20-MM, TPT, M221 – TPT stands for target practice tracer. An electric primer and ignition charge ignites the double-base propellant (nitrocellulose/nitroglycerin) to expel the inert projectile with tracer material. The tracer composition is primarily strontium nitrate/strontium peroxide and magnesium powder. Casing is thin-walled steel.

MD/MDAS

Mk 2, Cartridge Impulse - Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release. Aluminum body.

Mk 97 Cartridge, Impulse - Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release.

TCU-3/A, Thruster Cartridge Actuated – Electrically initiated pressure cartridge (3.64 grains of propellant nitrocellulose/nitroglycerin) to operate a release mechanism. Aluminum body

Hangar 860

MEC

Bomb, Practice Mk 43 - black powder expelling charge and a red phosphorous pyrotechnic mixture 4 lb 7 oz.

Bomb, Practice Mk 23 - black powder expelling charge and a red phosphorous pyrotechnic mixture 3 lb

Bomb, Practice Mk 24 – cannot find any specific information on this practice bomb. Likely typographical error. Perhaps this was supposed to be a Mk 23.

20mm, TP, M99, Mk 11 – Inert projectile with tracer material which is fully consumed when fired. Casing is thin-walled steel.

20mm w/ primer – Assuming this was live, it would be the same as below. Contains .37 oz explosive charge (H-761 RDX), 20 gr incendiary charge (I-136 90% strontium peroxide, 10% calcium resinate), propellant (nitrocellulose, nitroglycerin, dibutyl phthalate, misc other components less than 1%). Casing is thin-walled steel.

20mm HE M56 - Contains .37 oz explosive charge (H-761 RDX), 20 gr incendiary charge (I-136 90% strontium peroxide, 10% calcium resinate), propellant (nitrocellulose, nitroglycerin, dibutyl phthalate, misc other components less than 1%). Casing is thin-walled steel.

Signal, Illumination, ANM40A2 – Projects two free-falling stars (double star, red-yellow), which burn from 7 to 13 seconds, to an altitude of approximately 250 feet above the point of launch. Rimmed case construction with a steel closing cap. Could not find information with regard to the specific compounds. If similar to other illumination rounds, the illumination component consists primarily of magnesium powder and sodium nitrate with an aluminum launching tube.

Cartridge, Impulse, JAU 22/B - The impulse cartridge contains an electric primer, a booster, and a main charge. When the cartridge is fired, gas pressure moves a piston and unlocking linkage, freeing and/or ejecting the store from the rack. Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release. Aluminum body.

Cartridge, impulse, Mk 2 - Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release. Aluminum body

Cartridge, Impulse, MK 19 - Electrically initiated, case-grounded, screw-in type cartridge, consisting of an aluminum alloy body, ignition element, hollow metal plug and main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release.

AN M 31 Signal Cartridge – see ANM40A2. The AN-M31 was replaced with the AN-M40 series by 1944.

Cartridge, Impulse, CCU 44/B – Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release. Aluminum alloy body.

2.75" HEAT Rocket, Mk5 – 428 grams of Composition B (RDX and TNT). Casing is aluminum.

MD/MDAS

Bomb, Practice Mk 23 (Expended) – the intact, unexpended munitions item contains black powder expelling charge and a red phosphorous pyrotechnic mixture 3 lb.

40mm cartridge case (Expended) - Steel casing. The intact, unexpended munitions item contains TNT, manganese or barium nitrate, diphenylamine, manganese, nitrocellulose, potassium nitrate.

Cartridge, Impulse, JAU 22/B (Expended) - The intact, unexpended munitions item contains an electric primer, a booster, and a main charge. When the cartridge is fired, gas pressure moves a piston and unlocking linkage, freeing and/or ejecting the store from the rack. Electrically initiated main charge (nitrocellulose/nitroglycerin) which creates the pressure to actuate the release. Aluminum body.