

**STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

In the Matter of:)	Docket No. I/SE
)	
Benicia Arsenal)	IMMINENT AND SUBSTANTIAL
Benicia, California)	ENDANGERMENT DETERMINATION
)	AND REMEDIAL ACTION ORDER
Respondent:)	
)	
)	
United States Department)	Health and Safety Code
of the Army)	Sections 25358.3(a),
c/o U.S. Army Corps of)	25355.5(a) (1) (B), 58009,
Engineers)	and 58010
1325 J Street)	
Sacramento, CA 95814-2922)	
_____)	

I. INTRODUCTION

1.1 Parties. The State Department of Toxic Substances Control (Department) issues this Imminent and Substantial Endangerment Determination and Remedial Action Order (Order) to the United States of America by and through the Department of the Army (Army). The United States Department of the Army is also herein referred to as Respondent. Respondent is responsible for carrying out all actions required by this Order.

1.2 Property/Site. This Order applies to the property, known as the Former Benicia Arsenal. The property is located in the City of Benicia (City), Solano County, California. A map showing the property is attached as Exhibit A and a list of Assessor Parcel Numbers further identifying the property is attached as Exhibit B. This Order applies to the property and the areal extent of contamination that resulted from activities on the property (hereafter, the "Site").

1.3 Jurisdiction. Section 25358.3(a) of the Health and Safety Code authorizes the Department to issue an Order when the Department determines that there may be an imminent or substantial endangerment to the public health or welfare or to the environment, because of a release or a threatened release of a hazardous substance.

Section 25355.5(a)(1)(B) of the Health and Safety Code authorizes the Department to issue an order establishing a

schedule for removing or remedying a release of a hazardous substance at a site, or for correcting the conditions that threaten the release of a hazardous substance. The order may include, but is not limited to requiring, specific dates by which the nature and extent of a release shall be determined and the site adequately characterized, a remedial action plan be prepared and submitted to the Department for approval, and a removal or remedial action be completed.

Sections 58009 of the Health and Safety Code authorizes the Department to commence and maintain all proper and necessary actions and proceedings to enforce its rules and regulations; to enjoin and abate nuisances related to matters within its jurisdiction which are dangerous to health; to compel the performance of any act specifically enjoined upon any person, officer, or board, by any law of this state relating to matters within its jurisdiction and/or on matters within its jurisdiction, to protect and preserve the public health.

Section 58010 of the Health and Safety Code authorizes the Department to abate public nuisances related to matters within its jurisdiction.

II. FINDINGS OF FACT

The Department hereby finds:

2.1 Liability of Respondent. Respondent is a responsible party or liable person as defined in Health and Safety Code, section 25323.5.

2.1.1 Respondent was the owner and operator of the Site at the time when hazardous substances were released into the environment at or from the Site. Respondent used the property as a disposal site for munitions and explosives of concern (MEC) and Munitions Constituents (MC) through test firing of munitions, the use of open burn/open detonation (OB/OD) of munitions, direct burial of munitions, and accidental detonations of munitions at storage magazines. MEC is defined as: Military munitions that may pose a unique explosives safety risk and includes Unexploded Ordnance (UXO), as defined in 10 USC 2710(e)(9); Discarded Military Munitions (DMM), as defined in 10 USC 2710(e)(2); or Munitions Constituents [e.g., 2,4,6 Trinitrotoluene (TNT)] present in high enough concentrations to pose an explosive hazard. MC is defined as: Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions, as defined in 10 USC 2710(e)(4).

2.1.2 Respondent also used the site for industrial purposes, including: 1) the manufacture and testing of explosives and munitions that were released to the soil and/or groundwater by disposal, mishandling, and testing; 2) degreasing automotive and other equipment where solvents were released to the soil and/or groundwater by disposal and mishandling; 3) fuel and lubricant operations where petroleum hydrocarbons were released to the soil and/or groundwater by disposal, mishandling, and leaking from storage tanks and distribution systems; and 4) small arms manufacturing and coloring operations where acids, caustics, and solvents were released to the soil and/or groundwater by disposal and mishandling.

2.2 Physical Description. The Arsenal is bounded to the South by Carquinez Strait, to the East by Suisun Bay, to the West by City of Benicia, to the North by 2nd Street. The topography of the property ranges from the tidal flats of the west shore of Suisun Bay, to hills and steep drainage areas that are predominant the western boundary of the Arsenal at approximately 250-foot elevation in the Sulphur Springs Mountains.

2.3 Site History.

2.3.1 The Benicia Arsenal (Arsenal) was established in 1849 and assigned several missions throughout its 115-year history. The Arsenal had a total of 2,728 acres and consisted of approximately 300 buildings, two motor pools, NIKE missile repair facilities, an explosive holding area, and a network of 109 munitions storage "igloos." The Arsenal functioned as a site for storing, disposal, repairing, and testing of a variety of the military's munitions and weaponry, including MEC.

2.3.2 During the Civil War, the Army tested gunpowder manufactured on the West Coast at the Site. A 12-mile siege gun firing range and 120 foot firing gallery for an experimental rifle powder proving ground were developed and located along the southern waterfront of the Arsenal. After 1900, the Army engaged in the manufacture of targets, target materials, the manufacture of powder, assembly of powder charges and fixed ammunition, assembly of other munitions and fabrication of seacoast artillery material at the Site. Several major fires occurred at the Site that resulted in the detonation of 15-million rounds of small arms ammunition and the detonation of a powder magazine.

2.3.3 A major expansion of the Arsenal occurred during World War II. 1,847-acres were acquired for the placement of underground storage facilities (igloos), for a new

facility to rebuild combat and artillery vehicles, and for ammunition demolition. The Site became one of the major facilities for repairing/decommissioning armament and destroying outdated ammunition. The Army also stored Chemical Warfare Materials (CWM) in two igloos at the site and the Site was the receptor for CWM from supply depots throughout the country. CWM were transported to the Site for storage and further shipment via seagoing vessels.

2.3.4 During the Korean War, the Arsenal's operation expanded. In addition to other activities, the Army conducted testing to measure burning times for 60 millimeter (mm) illumination mortars and the effectiveness of low-grade, high-sulfur gasoline and high additive lubricating oils in combat vehicles. Explosives were routinely burned at the Arsenal. In 1951, 1.8 million pounds of scrap were recovered by Respondent from burned small arms ammunition.

2.3.5 During the Cold War the Army installed two Nike Missile defense batteries at the Site and the Army began rebuilding Nike guidance and propulsion systems (a potential source of perchlorate contamination).

2.3.6 When the Respondent closed the Arsenal in 1964 the site was sold to the City of Benicia for six million dollars. Benicia Industries, a private developer, provided the funds for the purchase in exchange for a 66-year master lease for the development and operation of the Arsenal property as an industrial area for the City of Benicia. At this point, the Site became a Formerly Used Defense Site (FUDS), and Respondent delegated the responsibility and authority to investigate and remediate the Site to the United States Army Corps of Engineers (USACE).

2.3.7 In 1998, the USACE initiated Site investigation activities in response to Department's discovery of Unexploded Ordnance (UXO) in and near the north western boundary of the Site (Tourtelot Property). The Tourtelot Property was designated by the City of Benicia for residential development. On June 1, 1999, the Department issued an Imminent and Substantial Endangerment and Remedial Action Order (IS&E) to the owner/developer, Granite Management Corporation, Pacific Bay Properties, FN Projects, Inc., and Pacific Bay Homes, LLC (hereinafter Developer) and to Respondent. The Developer remediated the Tourtelot Property under Department oversight. Thousands of pieces of ordnance were discovered and managed during a Removal Action at the Tourtelot Property. Pursuant to litigation in the United States District Court for the Eastern District of California, (Granite Management Corporation v United States of America, and the Department of the Army) on December 20, 2004, the parties entered into a Settlement Agreement and

Consent Order for \$50,000,000.00 from Respondent to plaintiff for damages and costs incurred from the plaintiff's remedial activities associated with the contamination remediated at the Tourtelot Property.

Concurrent with the investigation and remediation of the Tourtelot Property, the Respondent, acting through the USACE, initiated an investigation of the balance of the Site pursuant to the Defense and State Memorandum of Agreement (DSMOA) with the State of California which allows for State input, but not oversight, of remedial activities at the Site. The USACE has completed several investigations, a Munitions Removal Action and several underground storage tank removal actions. The Department and the San Francisco Bay Regional Water Quality Control Board (RWQCB) have not been satisfied with the adequacy and completeness of most of the Investigations and Removal Actions. The USACE did not follow the United States Environmental Protection Agency Guidance documents and was not consistent with the Comprehensive Environmental Response Compensation and Liability Act. The USACE did not obtain access to several large areas of the Site to conduct necessary and adequate Investigations in order to determine if Removal/Remedial Actions were necessary. The USACE also did not conduct Removal/Remedial Actions in areas where current property owners "beneficially reused" the properties subsequent to Respondent vacating the Site. The USACE also did not conduct Removal/Remedial Actions at portions of the Site where current property owners "may" have caused additional contamination. Exhibits C through XX depict some of the areas where contamination is present. Exhibit XXX depicts the areas where Respondent conducted activities that caused or may have caused the releases of hazardous substances to the environment at the Site.

2.3.8 MEC and MC:

Respondent's agent, USACE, has not performed adequate investigations and remedial actions in the areas of the Site where MEC or MC are known or suspected to be located. As an example, from 1996 to 1999, the USACE conducted four investigations and munitions clearance actions in the Tourtelot Property area. A total of nine MEC items were discovered on the Tourtelot Property during these investigations. Subsequent to Department's issuance of the IS&E, Developer, with Department oversight, conducted an investigation and remedial action wherein 4,530 MEC items, including a Mark 1 75 millimeter, high explosive, armor piercing round and a 105 millimeter, high explosive round, were either disposed in a Donovan Confined Detonation Chamber (Chamber), disposed in a planned detonation pit if they were stable enough to move and too big for the Chamber,

or blown in-place if they were unstable and could not be moved.

2.3.9 Gonsalves Property: Developer, at the request of Department, also conducted a limited investigation and removal action on property adjacent to the Tourtelot Property that is owned by the Rita A Gonsalves Trust (Gonsalves Property) and was an artillery testing area. The USACE had conducted an investigation of the Gonsalves Property, but found no MEC. Developer was restricted from disturbing the wetlands area in the Gonsalves Property, but found numerous MEC items outside the wetlands, including a 60 millimeter mortar and two 75 millimeter projectiles. Developer also discovered a bucket that contained 122 rounds of 30-caliber ammunition that was buried at the Gonsalves Property. It is likely that MEC is still present in the wetlands area and may be present in the Gonsalves Property outside the wetlands area due to the limited nature of the investigation conducted by Developer. The differences in the number of discoveries of MEC made in the two investigations conducted by the USACE, and Developer, with Department oversight, demonstrate that the Respondent has not performed adequate investigations and remedial actions at the Site.

2.3.10 City of Benicia: Although the City of Benicia leased the Site to Benicia Industries for the development of an industrial park, it took possession of, and now owns, the sewer and storm drain systems. When Respondent owned and operated the Site both the sewer and storm drain systems discharged directly to the Carquinez Strait. All domestic and industrial wastes were discharged without treatment directly into the Carquinez Strait. The sewer and storm drain systems were used by the City of Benicia, without modification, from the City of Benicia's purchase of the Site in 1964 until late 1969 or early 1970 when the sewer system outfall was diverted to the City of Benicia sewer treatment system. However, the storm drain system continues to discharge to the Carquinez Strait. A Brown and Caldwell letter report to the USACE titled "Storm Drain Investigation Letter Memorandum, Former Benicia Arsenal, Benicia, California, dated December 7, 2004, documents that the storm drain system releases Trichloroethylene (TCE) and its biodegradation breakdown products to the Carquinez Strait.

2.3.11 Fillsite 1 (Amports, Inc.): The area known as Fillsite 1 was noted on a map that was part of "Benicia, Portrait of an Early California Town," (Jacobs, 1999) and shown as a "dump." The USACE 2003 Preliminary Assessment Report for the Site indicates that Fillsite 1 may have been used as a burn dump. The USACE 2005 Expanded Site Inspection Report suggests that Fillsite 1 may have received industrial wastes, including fuels, acids, and oils. TCE

and its biodegradation breakdown products, and petroleum hydrocarbon contamination were discovered during the investigations conducted in preparation for the Expanded Site Inspection Report. Benicia Industries, Inc., AKA Amports, Inc. is the owner/operator of the property where Fillsite 1 is located.

2.3.12 Valero Property: Area S as depicted on Exhibit XX was used by Respondent for munitions storage. It also contained an OB/OD area and a rifle range. Valero, Refining Company owns and operates a refinery and maintains a buffer zone between the refinery and residential housing that lie within the boundaries of Area S. The USACE conducted a very limited MEC investigation on a small portion of Area S in the Valero Property. Valero workers have discovered numerous pieces of MEC during construction activities on the refinery property. The most recent discovery was on the morning of March 26, 2008, when a Valero Refinery worker discovered three old hand grenades near the crude tank area by Camel Barn Road. Camel Barn Road had been recently reworked. The items found adjacent to the road were removed by the State Fire Marshal.

2.3.13 Potter Property: Building 57A in Area I as depicted on Exhibit XX was used by Respondent as a weapons Parkerizing facility. It contained numerous tanks or vats that were used in the Parkerizing process. The Parkerizing process includes degreasing operations that likely used TCE as the degreasing solvent. According to the USACE Area I 50 Series Complex Report, dated October 2004, Historical Arsenal Park Limited Partnership, the current property owner of Building 57A, conducted an investigation in 1994 as a requirement for obtaining financing. TCE and its biodegradation breakdown products were discovered in soil and groundwater.

2.4 Hazardous Substances Found at the Site. The following hazardous substances have been found or have a potential to have been released at the Site:

2.4.1 Weaponized Materials. Weaponized materials were manufactured, tested, stored and disposed at the Site. Weaponized Materials found at the Arsenal include:

2.4.1.1 MEC. MEC has been released into the environment at or from the Site through disposal, test firing, and accidental detonations (fires at munitions storage units). Types of MEC found to date are intact or portions of 37 mm high explosive (HE) anti-tank rounds, 40 mm HE anti-aircraft rounds, 60 mm HE mortars, Stokes Mortars, fuzes, landmines, and 155mm projectiles. MEC items

are also hazardous wastes pursuant to the California Code of Regulations, title 22, , chapter 11, section 66261.23 (Reactivity).

2.4.1.2 2,4,6-Trinitrotoluene (TNT). TNT is a common component of the type of explosives manufactured, detonated and disposed at the site. Off-specification and/or excess TNT appears to also have been disposed to the ground as long strips of high concentration TNT were found in the north valley of the Site. TNT has been found at levels up to 5,400 mg/kg in the north valley of the Site and is listed as a hazardous waste constituent pursuant to California Code of Regulations, title 22,, division 4.5, chapter 11, appendix X.

2.4.2 Commercial Chemicals. Industrial shops located at the Arsenal used acids, solvents, and various other potentially hazardous materials. Additionally, the rebuilding of Nike Missiles likely resulted in the generation of propellant wastes. Commercial chemicals found or that have a potential to have been released at the Site include:

2.4.2.1 Solvents. Solvents were used through out the industrial and manufacturing shops at the Arsenal. Methyl ethyl Ketone (MEK), Acetone, and trichloroethylene (TCE) are hazardous substances in accordance with California Health and Safety Code, section 25316.

2.4.2.2 Perchlorate. Explosives within munitions and the solid rocket propellant of the Nike Missile contain perchlorate which is a hazardous substance in accordance with California Health and Safety Code, section 25316.

2.4.2.2 Solutions containing Heavy Metals. Plating operations used chromium, and other metals in the form of cyanides. Paint from paint shops and buildings may contain lead, copper, zinc and other metals. Photo shops use silver containing solutions. Carburization processes may use solutions of sodium cyanide (NaCN). These are hazardous substances in accordance with California Health and Safety Code, section 25316.

2.5 Health Effects.

2.5.1 Weaponized Materials.

2.5.1.1 UXO or MEC. The improper handling, impact or presence of UXO or MEC could cause sudden death, blunt force trauma, or dismemberment. Additionally, smaller pieces of UXO or MEC shrapnel with explosive residue could cause injury if improperly handled.

2.5.1.2 TNT. Health effects reported in people exposed to 2,4,6-trinitrotoluene include anemia, abnormal liver function, skin irritation, and cataracts, as well as death and dismemberment due to TNT's sudden reactive capability. TNT has been identified as a potential human carcinogen.

2.5.2 Solvents and Inorganic Chemicals.

2.5.2.1 2-Butanone/Methyl ethyl Ketone (MEK). The known health effects to people from exposure to MEK are irritation of the nose, throat, skin, and eyes. Synergistic effects are seen if MEK is breathed along with other chemicals that damage health. In animal studies, when MEK is breathed at very high levels, effects included birth defects, loss of consciousness, and death. When swallowed, rats had nervous system effects including drooping eyelids and uncoordinated muscle movements. Mice who breathed low levels of MEK for a short time period showed temporary behavioral effects. Mild kidney damage was observed in animals that drank water with lower levels of MEK for a short exposure time.

2.5.2.2 Acetone. Exposure to moderate-to-high amounts of acetone can irritate the eyes and respiratory system, headaches, and cause dizziness. Very high exposure may cause loss of consciousness.

2.5.2.3 Trichloroethylene (TCE). Breathing large amounts of TCE may cause impaired heart function, unconsciousness, and death. Breathing it for long periods may cause nerve, kidney, and liver damage. Drinking large amounts of trichloroethylene may cause nausea, liver damage, unconsciousness, impaired heart function, or death. Drinking small amounts of trichloroethylene for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women. The National Toxicology Program (NTP) has determined that TCE is "reasonably anticipated to be a human carcinogen.

2.5.2.4 Perchlorate. High levels of perchlorates can affect the thyroid gland, which in turn can alter the function of many organs in the body. The fetus and young children can be especially susceptible. Low levels of thyroid hormones in the blood may lead to adverse effects on the skin, cardiovascular system, pulmonary system, kidneys, gastrointestinal tract, liver, blood, neuromuscular system, nervous system, skeleton, male and female reproductive system, and numerous endocrine organs.

2.5.3 Heavy Metals.

2.5.3.1 Chromium. Chromium (VI) at high levels can cause irritation to the lining of the nose, nose ulcers, runny nose, and breathing problems, such as asthma, cough, shortness of breath, or wheezing. Ingesting high levels of chromium (VI) may result in anemia or damage to the stomach or intestines. The EPA has determined that chromium (VI) compounds are known human carcinogens. In workers, inhalation of chromium (VI) has been shown to cause lung cancer. Chromium (VI) also causes lung cancer in animals. An increase in stomach tumors was observed in humans and animals exposed to chromium (VI) in drinking water.

2.5.3.2 Lead. Lead can affect almost every organ and system in the body. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High level exposure in men can damage the organs responsible for sperm production. The EPA has determined that lead is a probable human carcinogen.

2.5.3.3 Silver. Exposure to high levels of silver in the air has resulted in breathing problems, lung and throat irritation, and stomach pains. Skin contact with silver can cause mild allergic reactions such as rash, swelling, and inflammation in some people. Animal studies have shown that swallowing silver results in the deposit of silver in the skin. One study in mice found that the animals exposed to silver in drinking water were less active than unexposed animals.

2.5.3.4 Cyanide. Exposure to high levels of cyanide harms the brain and heart, and may cause coma and death. Exposure to lower levels may result in breathing difficulties, heart pains, vomiting, blood changes, headaches, and enlargement of the thyroid gland. Skin contact with cyanide can irritate and produce sores.

2.6 Routes of Exposure.

2.6.1 Weaponized Materials.

2.6.1.1 UNEXPLODED ORDNANCE (UXO) or Munitions and Explosives of Concern (MEC). Routes of exposure for humans are through direct dermal penetration, blunt force trauma, or dismemberment.

2.6.1.2 TNT. Routes of exposure are through inhalation, skin contact or ingestion.

2.6.2 Solvents and Inorganic Chemicals.

2.6.2.1 MEK. Routes of exposure are through inhalation, skin contact or ingestion.

2.6.2.2 Acetone. Routes of exposure are through inhalation, skin contact or ingestion.

2.6.2.3 TCE. Routes of exposure are through inhalation, skin contact or ingestion.

2.6.2.4 Perchlorate. Routes of exposure are through inhalation or ingestion.

2.6.3 Heavy Metals.

2.6.3.1 Chromium. Routes of exposure are through inhalation, skin contact or ingestion.

2.6.3.2 Lead. Routes of exposure are through inhalation, skin contact or ingestion.

2.6.3.3 Silver. Routes of exposure are through inhalation, skin contact or ingestion.

2.6.3.4 Cyanide. Routes of exposure are through inhalation, skin contact or ingestion.

2.7 Public Health and/or Environmental Risk. The former arsenal is currently a mixed use facility that is primarily used for light/heavy industrial purposes, with some residential occupancy. The City of Benicia has recently released for public comment and environmental review a "Lower Arsenal Mixed Use Specific Plan" that would increase residential occupancy of the Site.

Workers in the areas where site access is controlled, such as the Valero Refinery area that maintains chain-link and barbed wire fencing, and where weaponized Materials were manufactured, tested, stored and disposed at the Site would be exposed to accidental detonation of MEC during excavation and routine Site maintenance activities (see Exhibit XX MORMS map). Workers would also be exposed to dust from TNT contaminated soils while working in areas that contained such contamination. Trespassers may also be exposed to these weaponized materials. The Site access controls do not adequately minimize the threat to exposure.

Other areas within the former Arsenal where weaponized Materials were manufactured, tested, stored and disposed do

not have adequate site access controls (e.g.: open space/buffer zone areas of the Valero property) and these areas present a threat to workers, users, and trespassers of accidental detonation of MEC during excavation, routine Site maintenance activities, and recreation. Fencing on the Valero property open space/buffer zone area includes residential fencing. Some of these residential fences have gates that lead directly into the open space/buffer zone area and some residents have erected benches and sitting areas within the open space/buffer zone area which indicates that this area is being used by residents for recreational purposes. These individuals would also be exposed to dust from TNT contaminated soils while in areas that contained such contamination.

Workers and residents in the former Arsenal would also be exposed to the solvents and heavy metal contaminants in the soil and/or groundwater through inhalation of: dust from heavy metal contaminated soils and indoor-air exposure from solvents that accumulate within the buildings that are above solvent contaminated soils and groundwater.

Groundwater at the Site is shallow (5 to 10-feet) and tidal influences likely cause releases of groundwater contaminants to the Carquinez Strait and could adversely affect the biota therein. The Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region designates the beneficial use of groundwater at the site to include domestic water supply though there are no domestic water supply wells in the area of the Site.

2.8 The Department may issue additional Imminent and Substantial Endangerment Determinations and Remedial Action Orders to several parties currently owning portions of the Arsenal (Individual Property Owners), as shown in the attached Exhibit [XX]. For the specified parcels, Respondent would be jointly and severally responsible for performing response actions with the individual property owners. The Department may also issue additional Imminent or Substantial Endangerment Determinations and Remedial Action Orders to additional parties in the future.

III. CONCLUSIONS OF LAW

3.1 Respondent is a "responsible party" or "liable person" as defined by Health and Safety Code section 25323.5.

3.2 Each of the substances listed in Section 2.4 is a "hazardous substance" as defined by Health and Safety Code Section 25316.

3.3 There has been a "release" or there is a "threatened release" of the hazardous substances listed in Section 2.4 at the Site, as defined in Health and Safety Code Section 25320.

3.4 The actual and/or threatened release of hazardous substances at the Site may present an imminent and substantial endangerment to the public health or welfare or to the environment.

3.5 Response action is necessary to abate a public nuisance and/or to protect and preserve the public health.

IV. DETERMINATION

4.1 Based on the foregoing findings of fact and conclusions of law, the Department hereby determines that response action is necessary at the Site because there has been a release and/or there is a threatened release of a hazardous substance.

4.2 Based on the foregoing findings of fact and conclusions of law, the Department determines that there may be an imminent and/or substantial endangerment to the public health or welfare or to the environment because of the release and/or the threatened release of the hazardous substances at the Site.

V. ORDER

Based on the foregoing FINDINGS, CONCLUSIONS, AND DETERMINATION, IT IS HEREBY ORDERED THAT Respondent conduct the following response actions in the manner specified herein, and in accordance with a schedule specified by the Department as follows:

5.1. All response actions taken pursuant to this Order shall be consistent with the requirements of chapter 6.8 (commencing with section 25300), division 20 of the Health and Safety Code and any other applicable state or federal statutes and regulations.

5.1.1 Site Remediation Strategy. The purpose of this Order is to require for the Site: implementation of any appropriate removal actions, completion of a Remedial Investigation/Feasibility Study (RI/FS), preparation of a Remedial Action Plan (RAP), preparation of California Environmental Quality Act (CEQA) documents, and Design and Implementation of the remedial actions approved in the RAP. An overall Site investigation and remediation strategy shall be developed by Respondent in conjunction with the Department that reflects program goals, objectives, and requirements. Current knowledge of the Site contamination

closure pathways, and receptors shall be used in this strategy.

A objective of the Site investigations shall be to identify immediate or potential risks to public health and environment and prioritize and implement response actions including removal actions and operable units, if appropriate, based on the relative risks at the Site. For the purposes and Department shall develop and possibly modify response priorities throughout the course of the investigations. As necessary for the protection of public health and the environment, Department will require additional response actions not specified in this Order to be performed as removal actions or separate operable units. Removal actions shall be implemented in accordance with a workplan and implementation schedule submitted by Respondent and approved by Department.

For operable unit remedial actions, Department will specify the separate and focused remedial phase activities to be conducted as RI/FS, RAP, Design, and Implementation. The focused activities shall be conducted in accordance with corresponding remedial phase requirements specified in this Order, but shall only address the area or problem of the operable unit.

5.1.2 Remedial Action Objectives. Based on available information, Department has preliminarily determined that the remedial action objectives for the Site shall include:

(a) Existing and potential beneficial uses of groundwater shall be protected. The Regional Water Quality Control Board Basin Plan identifies public water supply as a beneficial use of this aquifer. Therefore, drinking water standards or more conservative values determined by a Risk Assessment shall be remedial action objectives for this Site.

(b) The reasonably foreseeable future land use of the Lower Arsenal portion of the Site includes residential. Therefore, remedial action objectives for contaminated media in this portion of the Site shall be developed which are protective of adults and children in a residential exposure scenario. The areas affected by this objective are specified in the City of Benicia's Lower Arsenal Mixed Use Specific Plan.

(c) The reasonably foreseeable future land use of the Upper Arsenal portion of the Site is mixed use including: industrial-general, industrial-waterfront, commercial-general, and open space-marsh. Therefore, remedial action objectives for contaminated media in this portion of the Site shall be developed which are

protective of workers in a commercial/industrial exposure scenario in the areas specified for commercial/industrial land use and protective of recreational users and environmental receptors in areas designated as open space-marsh. The areas affected by this objective are specified in the City of Benicia's General Plan.

5.1.3 Operable Units. Respondent(s) shall conduct separate RI/FS investigations and subsequent response actions for the following operable units in accordance with the schedules contained within this Order:

(a) MEC Areas. A separate RI/FS shall be conducted in the areas of the site where MEC are known or suspected to have been manufactured, tested, stored and disposed at the Site.

(b) Sitewide Investigation. A Sitewide RI/FS will be conducted to determine the vertical and lateral extent of MC and non-MEC contamination that has been released to the soils of the Site.

5.1.3 The Department has issued Imminent or Substantial Endangerment Orders and Remedial Action Orders (Orders) to the parties shown in Exhibit [XX]. These Orders require the parties to comply with provisions in this Order for the individual properties. The Army is jointly and severally responsible for performing each response action as required by this Order. The Army shall participate and coordinate with the Individual Property Owners to perform the response actions required by this Order. No later than October 10, 2010, Respondent shall submit a notice to the Department of its intent to comply with this Order.

5.1.4 Site Remediation Strategy Meeting. The Respondent, including the Project Coordinator (Section 6.1) and Project Engineer/Geologist (Section 6.2), shall meet with the Department no later than October 20, 2010, to discuss the Site remediation strategy. The discussion will include Site risks and priorities; project planning, phasing and scheduling, remedial action objectives, remedial technologies, data quality objectives, and the RI/FS workplan. Results of the discussion shall be included in the Scoping Document required under Section 5.2.2(b) of this Order.

5.2 Remedial Investigation/Feasibility Study. A RI/FS shall be conducted for the Site. The RI/FS may be performed as a series of focused RI/FSs, if appropriate, based on Site priorities (see Section 5.1.3, Operable Units). The RI/FS shall be prepared consistent with the U.S. EPA's "Guidance for Conducting Remedial Investigations and Feasibility

Studies under CERCLA," October 1988. The purpose of the RI/FS is to assess Site conditions and to evaluate alternatives to the extent necessary to select a remedy appropriate for the Site. RI and FS activities shall be conducted concurrently and iteratively so that the investigations can be completed expeditiously. Because of the unknown nature of the Site and iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. The Respondent shall fulfill additional data and analysis needs identified by the Department; these additional data and analysis requests will be consistent with the general scope and objectives of the Order.

The following elements of the RI/FS process and those defined by the Department shall be preliminarily defined in the initial Site scoping and refined and modified as additional information is gathered throughout the RI/FS process.

- (a) Conceptual Site Model identifying contamination sources, exposure pathways, and receptors;
- (b) Federal, State and local remedial action objectives including applicable or relevant and appropriate requirements;
- (c) Project phasing including the identification of removal actions and operable units;
- (d) General response actions and associated remedial technology types; and
- (e) The need for treatability studies.

5.2.1 RI/FS Objectives. The objectives of the RI/FS are to:

- (a) Determine the nature and full extent of hazardous substance contamination of air, soil, surface water and groundwater at the Site;
- (b) Identify all actual and potential exposure pathways and routes through environmental media;
- (c) Determine the magnitude and probability of actual or potential harm to public health, safety or welfare or to the environment posed by the threatened or actual release of hazardous substances at or from the Site;
- (d) Identify and evaluate appropriate response measures to prevent or minimize future

releases and mitigate any releases which have already occurred; and

- (e) Collect and evaluate the information necessary to prepare a RAP.

5.2.2 RI/FS Workplan. Within 60 days of the Site Remediation Strategy Meeting, Respondent shall prepare and submit to the Department for review and approval a detailed RI/FS Workplan and implementation schedule which covers all the activities necessary to conduct a complete RI/FS of the Site excluding groundwater. Concurrently, Respondent shall prepare and submit to the Department for review and approval a RI/FS Workplan and implementation schedule which covers all the activities necessary to conduct a complete RI/FS of groundwater at the Site.

The RI/FS Workplans shall include a detailed description of the tasks to be performed, information or data needed for each task, and the deliverables which will be submitted to the Department. Either the Respondent or the Department may identify the need for additional work.

These RI/FS Workplan deliverables are discussed in the remainder of this Section, with a schedule for implementation, and monthly reports. The RI/FS Workplans shall include all the sections and address each component listed below.

- (a) Project Management Plan. The Project Management Plan shall define relationships and responsibilities for major tasks and project management items by Respondent, its contractors, subcontractors, consultants, and reporting relationships. The plan shall include an organization chart with the names and titles of key personnel and a description of their individual responsibilities.
- (b) Scoping Document. The Scoping Document shall incorporate program goals, program management principles, and expectations contained in 40 CFR, Part 300, National Oil and Hazardous Substances Pollution Contingency Plan (NCP). It shall include:
 - (1) An analysis and summary of the Site background and the physical setting. At a minimum, the following information is required:

(A) A map of the Site, and if they exist, aerial photographs and blueprints showing buildings and structures;

(B) A detailed description of past disposal practices and earthwork;

(C) A list of all hazardous substances, materials or wastes which were disposed, discharged, spilled, treated, stored, transferred, transported, handled or used at the Site, and a description of their estimated volumes, concentrations, and characteristics;

(D) A description of hazardous substance characteristics; and,

(E) If applicable, a description of all current and past manufacturing processes which are or were related to each hazardous substance, material or waste.

(2) An analysis and summary of previous response actions, including a summary of all existing data including air, soil, surface water, and groundwater data and the Quality Assurance/Quality Control (QA/QC) procedures which were followed;

(3) Presentation of the Conceptual Site Model;

(4) The scope and objectives of RI/FS activities;

(5) Preliminary identification of possible response actions and the data needed for the evaluation of alternatives. Removal actions shall be proposed if needed based on the initial evaluation of threats to public health and the environment. If remedial actions involving treatment can be identified, treatability studies shall be conducted during the characterization phase, unless the Respondent and the Department agree that such studies are unnecessary as set forth in Section 5.4; and

(6) If applicable, initial presentation of the Site Remediation Strategy.

(c) Field Sampling and Geophysical Plan. The Field Sampling Plan shall include:

(1) Sampling objectives, including a brief description of data gaps and how the field sampling plan will address these gaps;

- (2) Sample locations, including a map showing these locations, and proposed frequency;
- (3) Sample designation or numbering system;
- (4) Detailed specification of sampling equipment and procedures;
- (5) Sample handling and analysis including preservation methods, shipping requirements and holding times; and
- (6) Management plan for wastes generated.

(d) Quality Assurance Project Plan. The plan shall include:

- (1) Project organization and responsibilities with respect to sampling and analysis;
- (2) Quality assurance objectives for measurement including accuracy, precision, and method detection limits. In selecting analytical methods, the Respondent shall consider obtaining detection limits at or below potential applicable legal requirements or relevant and appropriate standards, such as Maximum Contaminant Levels (MCLs) or Maximum Contaminant Level Goals (MCLGs);
- (3) Sampling procedures;
- (4) Sample custody procedures and documentation;
- (5) Field and laboratory calibration procedures;
- (6) Analytical procedures;
- (7) Laboratory to be used certified pursuant to H&SC Section 25198;
- (8) Specific routine procedures used to assess data (precision, accuracy and completeness) and corrective actions;
- (9) Reporting procedure for measurement of system performance and data quality;
- (10) Data management, data reduction, validation and reporting, including any computer algorithms. Information shall be accessible to downloading into the Department's system; and

(11) Internal quality control.

(e) Health and Safety Plan. A Site-specific Health and Safety Plan shall be prepared in accordance with federal (29 C.F.R. part 1910.120) and state (title 8 California Code of Regulations, section 5192) regulations and shall describe the following:

(1) Field activities including work tasks, objectives, and personnel requirements and a description of hazardous substances on the Site;

(2) Respondents' key personnel and responsibilities;

(3) Potential hazards to workers including chemical hazards, physical hazards, confined spaces and climatic conditions;

(4) Potential risks arising from the work being performed including the impact to workers, the community and the environment;

(5) Exposure monitoring plan;

(6) Personal protective equipment and engineering controls;

(7) Site controls including work zones and security measures;

(8) Decontamination procedures;

(9) General safe work practices;

(10) Sanitation facilities;

(11) Standard operating procedures;

(12) Emergency response plan covering workers addressing potential hazardous material releases;

(13) Training requirements;

(14) Medical surveillance program; and

(15) Record keeping.

(f) Other Activities. A description of any other significant activities which are appropriate to complete the RI/FS shall be included.

- (g) Schedule. A schedule which provides specific time frames and dates for completion of each activity and report conducted or submitted under the RI/FS Workplan including the schedules for removal actions and operable unit activities.

5.2.3 RI/FS Workplan Implementation. Respondent shall implement the approved RI/FS Workplan.

5.2.4 RI/FS Workplan Revisions. Prior to modifying the method or initiating new activities which have not been approved by the Department, the Respondent shall prepare an addendum to the approved plan(s) for Department review and approval for Field Sampling Plan, Health and Safety Plan, Quality Assurance Project Plan or other necessary procedures/plans to establish the activities.

5.3 Interim Screening and Evaluation of Remedial Technologies. At the request of the Department, the Respondent shall submit an interim document which identifies and evaluates potentially suitable remedial technologies and recommendations for treatability studies.

5.4 Treatability Studies. Treatability testing will be performed by the Respondent to develop data for the detailed remedial alternatives. Treatability testing is required to demonstrate the implement ability and effectiveness of technologies, unless the Respondent can show the Department that similar data or documentation or information exists. The required deliverables are: a workplan, a sampling and analysis plan, and a treatability evaluation report. To the extent practicable, treatability studies will be proposed and implemented during the latter part of Site characterization.

5.5 Remedial Investigation (RI) Report. The RI Report shall be prepared and submitted by the Respondent to the Department for review and approval in accordance with the approved RI/FS workplan schedule. The purpose of the RI is to collect data necessary to adequately characterize the Site for the purposes of defining risks to public health and the environment and developing and evaluating effective remedial alternatives. Site characterization may be conducted in one or more phases to focus sampling efforts and increase the efficiency of the investigation. The Respondent shall identify the sources of contamination and define the nature, extent, and volume of the contamination. Using this information, the contaminant fate and transport shall be evaluated. The RI Report shall contain:

- (a) Site Physical Characteristics. Data on the physical characteristics of the Site and

surrounding area shall be collected to the extent necessary to define potential transport pathways and receptor populations and to provide sufficient engineering data for development and screening of remedial action alternatives;

- (b) Sources of Contamination. Contamination sources (including contaminated media) shall be defined. The data shall include the source locations, type of containment, waste characteristics, and Site features related to contaminant migration and human exposure; and,
- (c) Nature and Extent of Contamination. Contaminants shall be identified and the horizontal and vertical extent of contamination shall be defined in soil, groundwater, surface water, sediment, air, and biota. Spatial and temporal trends and the fate and transport of contamination shall be evaluated.

5.6 Health and Ecological Risk Assessment. The Respondent shall submit a Health and Ecological Risk Assessment Report within thirty (30) days from the submittal of the RI Report. The report shall be prepared consistent with U.S. EPA and Department guidance and regulations, including as a minimum: Risk Assessment Guidance for Superfund, Volume 1; Human Health Evaluation Manual, December 1989; Superfund Exposure Assessment Manual, April 1988; Risk Assessment Guidance for Superfund, Volume 2, Environmental Evaluation Manual, March 1989; and Health and Safety Code section 25356.1.5. The Health and Ecological Risk Assessment Report shall include the following components:

- (a) Contaminant Identification. Characterization data shall be screened to identify contaminants of concern in order to focus subsequent efforts of the risk assessment process;
- (b) Environmental Evaluation. An ecological assessment consisting of:
 - (1) Identification of sensitive environments and rare, threatened, or endangered species and their habitats; and
 - (2) As appropriate, ecological investigations to assess the actual or potential effects on the environment and/or develop remediation criteria;
- (c) Exposure Assessment. The objectives of an exposure assessment are to identify actual or

potential exposure pathways, to characterize the potentially exposed populations, and to determine the extent of the exposure. Exposed populations may include industrial workers, residents, and subgroups that comprise a meaningful portion of the general population, including, but not limited to, infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other subpopulations, that are identifiable as being at greater risk of adverse health effects due to exposure to hazardous substances than the general population;

- (d) Toxicity Assessment. Respondent shall evaluate the types of adverse health or environmental effects associated with individual and multiple chemical exposures; the relationship between magnitude of exposures and adverse effects; and related uncertainties such as the weight of evidence for a chemical's potential carcinogenicity in humans; and,
- (e) Risk Characterization. Risk characterization now includes the potential risks of adverse health or environmental effects for each of the exposure scenarios derived in the exposure assessment.

5.7 Feasibility Study (FS) Report. The FS Report shall be prepared and submitted by the Respondent to the Department for review and approval, no later than forty-five (45) days from submittal of the RI Report. The FS Report shall summarize the results of the FS including the following:

- (a) Documentation of all treatability studies conducted;
- (b) Development of medium specific or operable unit specific remedial action objectives, including legal requirements and other promulgated standards that are relevant;
- (c) Identification and screening of treatment options for UXO/MEC treatment onsite or offsite;
- (d) Identification and screening of general response actions, remedial technologies, and process options on a medium and/or operable unit specific basis;
- (e) Discussion of any required deed restrictions, or other institutional controls; and,

- (f) Evaluation of alternatives based on the criteria contained in the NCP including:

Threshold Criteria

- (1) Overall protection of human health and the environment;
- (2) Compliance with all applicable state, federal and local requirements;

Primary Balancing Criteria

- (1) Long-term effectiveness and permanence;
- (2) Reduction of toxicity, mobility, or volume through treatment;
- (3) Short-term effectiveness;
- (4) Implement ability based on technical and administrative feasibility;
- (5) Cost;

Modifying Criteria

- (1) State and local agency acceptance;
- (2) Community acceptance; and,
- (3) Other Proposed remedial actions.

5.8 Public Participation Plan (Community Relations).

The Respondent shall work cooperatively with the Department in ensuring that the affected public and community are involved in the Department's decision-making process. Any such public participation activities shall be conducted in accordance with Health and Safety Code sections 25356.1 and 25358.7, and the Department's most current Public Participation Policy and Guidance Manual, and shall be subject to the Department's review and approval.

The Respondent, in coordination with the Department, shall assess the community and develop a Public Participation Plan (PPP) which describes how, under the Order, the public and adjoining community will be kept informed of activities conducted at the Site and how the Respondent will be responding to inquiries from concerned citizens. Major steps in developing a PPP are as follows:

- (a) Develop proposed list of interviewees;

- (b) Schedule and conduct community interviews; and
- (c) Analyze interview notes, and develop objectives.

The Respondent shall submit the PPP for the Department's review within forty (40) days of the Site Remediation Strategy Meeting.

The Respondent shall develop and submit fact sheets to the Department for review and approval when key milestones are projected and/or completed or when specifically requested by the Department. Respondent shall be responsible for distribution of fact sheets using the approved community mailing list.

5.9 California Environmental Quality Act (CEQA). The Department will comply with CEQA for all activities required by this Order that are projects subject to CEQA. Upon The Department's request, Respondent shall provide the Department with any information that the Department deems necessary to facilitate compliance with CEQA. The costs incurred by the Department in complying with CEQA are response costs and Respondent shall reimburse the Department for such costs pursuant to Section 6.19.

5.10 Remedial Action Plan. No later than thirty (30) days after Department approval of the FS Report, the Respondent shall prepare and submit to the Department a draft RAP. The draft RAP shall be consistent with the NCP and Health and Safety Code section 25356.1. The draft RAP public review process may be combined with that of any other documents required by CEQA. The draft RAP shall be based on and summarize the approved RI/FS Reports, and shall clearly set forth:

- (a) Health and safety risks posed by the conditions at the Site;
- (b) The effect of contamination or pollution levels upon present, future, and probable beneficial uses of contaminated, polluted, or threatened resources;
- (c) The effect of alternative remedial action measures on the reasonable availability of groundwater resources for present, future, and probable beneficial uses;
- (d) Site specific characteristics, including the potential for offsite migration of hazardous substances, the surface or subsurface soil, and the hydrogeologic conditions, as well as preexisting background contamination levels;

(e) Cost-effectiveness of alternative remedial action measures. Land disposal shall not be deemed the most cost-effective measure merely on the basis of lower short-term cost;

(f) The potential environmental impacts of alternative remedial action measures, including, but not limited to, land disposal of the untreated hazardous substances as opposed to treatment of the hazardous substances to remove or reduce its volume, toxicity, or mobility prior to disposal;

(g) A statement of reasons setting forth the basis for the removal and remedial actions selected. The statement shall include an evaluation of each proposed alternative submitted and evaluate the consistency of the removal and remedial actions proposed by the plan with the federal regulations and factors specified in subdivision (d) of H&SC Section 25356.1, if these factors are not otherwise adequately addressed through compliance with the federal regulations. The statement shall also include a proposed Nonbinding Preliminary Allocation of Responsibility (NBAR) for all identified responsible parties; and,

(h) A schedule for implementation of all proposed removal and remedial actions.

In conjunction with the Department, Respondent shall implement the public participation process specified in The Department's Public Participation Policy and Guidance Manual. Within ten (10) days of closure of the public comment period, Respondent shall submit a written Responsiveness Summary of all written and oral comments presented and received during the public comment period.

Following the Department's review and finalization of the Responsiveness Summary, the Department will specify any changes to be made in the RAP. Respondent shall modify the document in accordance with the Department's specifications and submit a final RAP within fifteen (15) days of receipt of the Department's comments.

5.11 Remedial Design (RD). Within sixty (60) days after Department approval of the final RAP, Respondent shall submit to the Department for review and approval a RD describing in detail the technical and operational plans for implementation of the final RAP which includes the following elements, as applicable:

(a) Design criteria, process unit and pipe sizing calculations, process diagrams, and final plans and specifications for facilities to be constructed;

(b) Description of equipment used to excavate, handle, and transport contaminated material;

(c) A field sampling and laboratory analysis plan addressing sampling during implementation and to confirm achievement of the performance objectives of the RAP;

(d) A transportation plan identifying routes of travel and final destination of wastes generated and disposed, and including approvals from California Department of Transportation, California Highway Patrol and any other local, state, or federal agency;

(e) For groundwater extraction systems: aquifer test results capture zone calculations, specifications for extraction and performance monitoring wells, and a plan to demonstrate that capture is achieved;

(f) An updated health and safety plan addressing the implementation activities;

(g) Identification of any necessary permits and agreements;

(h) An operation and maintenance plan including any required monitoring; and,

(i) A detailed schedule for implementation of the remedial action consistent with the schedule contained in the approved RAP including procurement, mobilization, construction phasing, sampling, facility startup, and testing.

5.12 Land Use Covenant. If the approved remedy in the Final RAP or final RAW includes deed restrictions or other institutional controls. Respondent shall sign and record deed restrictions in the form of a Covenant to Restrict Use of Property-Environmental Restriction or implement other institutional controls approved by the Department pursuant to the Implementation and Enforcement Plan contained in the RAP within ninety (90) days of the Department's approval of the final RAP or final RAW. If Respondent does not own property that will be subject to the deed restrictions or other institutional controls then Respondent shall negotiate with the current property owner(s) during the RI/FS and draft RAP or draft RAW stages to insure deed restrictions or other institutional controls contained in the selected remedy will be implemented.

5.13 Implementation of Final RAP. Upon Department approval of the RD, Respondent shall implement the final RAP

in accordance with the approved schedule in the RD. Within thirty (30) days of completion of field activities, Respondent shall submit an Implementation Report documenting the implementation of the Final RAP and RD.

5.14 Operation and Maintenance (O&M). Respondent shall comply with all O&M requirements in accordance with the final RAP and approved RD. Within thirty (30) days of the date of Department's request, Respondent(s) shall prepare and submit to Department for approval an O&M plan that includes an implementation schedule. Respondent(s) shall implement the plan in accordance with the approved schedule.

O&M Agreements, which include financial assurance, must be entered into with the Department prior to certification of the Site.

5.15 Five-Year Review. Respondent shall review and reevaluate the remedial action after a period of one (1) year and every other year thereafter until the fifth year, then every five (5) years thereafter. The review will start after the completion of construction and startup. The review and reevaluation shall be conducted to determine if human health and the environment are being protected by the remedial action. Within thirty (30) calendar days before the end of the time period approved by the Department to review and reevaluate the remedial action, Respondent shall submit a remedial action review workplan to the Department for review and approval. Within sixty (60) days of the Department's approval of the workplan, Respondent shall implement the workplan and shall submit a comprehensive report of the results of the remedial action review. The report shall describe the results of all sample analyses, tests and other data generated or received by Respondent and evaluate the adequacy of the implemented remedy in protecting public health, safety and the environment. As a result of any review performed under this Section, Respondent may be required to perform additional work or to modify work previously performed.

5.16 Changes During Implementation of the Final RAP. During the implementation of the final RAP and RD, the Department may specify such additions, modifications, and revisions to the RD as Department deems necessary to protect public health and safety or the environment or to implement the final RAP.

5.17 Stop Work Order. In the event that the Department determines that any activity (whether or not pursued in compliance with this Order) may pose an imminent or substantial endangerment to the health or safety of people on the Site or in the surrounding area or to the environment, the Department may order Respondent to stop

further implementation of this Order for such period of time needed to abate the endangerment. In the event that the Department determines that any Site activities (whether or not pursued in compliance with this Order) are proceeding without Department authorization, the Department may order Respondent to stop further implementation of this Order or activity for such period of time needed to obtain Department authorization, if such authorization is appropriate. Any deadline in this Order directly affected by a Stop Work Order, under this Section, shall be extended for the term of the Stop Work Order.

5.18 Emergency Response Action/Notification. In the event of any action or occurrence (such as a fire, earthquake, explosion, or human exposure to hazardous substances caused by the release or threatened release of a hazardous substance) during the course of this Order, Respondent shall immediately take all appropriate action to prevent, abate, or minimize such emergency, release, or immediate threat of release and shall immediately notify the Project Manager. Respondent shall take such action in consultation with the Project Manager and in accordance with all applicable provisions of this Order. Within seven (7) days of the onset of such an event, Respondent shall furnish a report to the Department, signed by the Respondents' Project Coordinator, setting forth the events which occurred and the measures taken in the response thereto. In the event that Respondent fail to take appropriate response and the Department takes the action instead, Respondent shall be liable to the Department for all costs of the response action. Nothing in this section shall be deemed to limit any other notification requirement to which the Respondent may be subject.

5.19 Discontinuation of Remedial Technology. Any remedial technology employed in implementation of the final RAP shall be left in place and operated by Respondent until and except to the extent that the Department authorizes Respondent in writing to discontinue, move or modify some or all of the remedial technology because Respondent has met the criteria specified in the final RAP or final RAW for its discontinuance, or because the modifications would better achieve the goals of the final RAP or final RAW.

5.20 Financial Assurance. Unless otherwise exempt by statute, Respondent shall demonstrate to the Department and maintain financial assurance for operation and maintenance and monitoring. Respondent shall demonstrate financial assurance prior to the time that operation and maintenance activities are initiated and shall maintain it throughout the period of time necessary to complete all required operation and maintenance activities. The financial assurance mechanisms shall meet the requirements of Health

and Safety Code section 25355.2. All financial assurance mechanisms are subject to the review and approval of the Department.

VI. GENERAL PROVISIONS

6.1 Project Coordinator. No later than October 10, 2010, Respondent shall submit to the Department in writing the name, address, and telephone number of a Project Coordinator whose responsibilities will be to receive all notices, comments, approvals, and other communications from the Department. The Project Coordinator will have the sole responsibility for communicating to the Department. Respondent shall promptly notify the Department of any change in the identity of the Project Coordinator.

6.1.1 Communication and Coordination Plan (CCP). Within thirty (30) days from the date the Department issues Orders to an other responsible parties, Respondent shall submit to Department for its approval a CCP which specifies the requirements and procedures by which all Respondents will communicate and coordinate with one another in carrying out the requirements of this Order. At a minimum the CCP shall contain the following:

(a) Communication Strategy. The Respondents shall specify how the single Project Coordinator and all Respondents will communicate and disseminate information relative to the Order. The name, title, address, e-mail address, and telephone number of the primary contact person for each of the Respondents shall be included in the communication strategy; and,

(b) Coordination of Efforts. The Respondents shall describe with specificity how the technical, financial, and administrative requirements of the Order are to be coordinated and distributed among and performed by the Respondents. The CCP shall describe the obligations of each and every Respondent in full.

A duly authorized representative of the Respondent shall sign the CCP prior to the submission of the CCP to the Department. Failure of the Respondent to sign the CCP will constitute a violation of the Order by that Respondent.

The Respondent shall submit all proposed changes or amendments to the CCP to Department for approval.

The CCP, as approved by the Department, shall be incorporated into and enforceable under the Order.

6.2 Project Engineer/Geologist. The work performed pursuant to this Order shall be under the direction and

supervision of a qualified professional engineer or a registered geologist in the State of California, with expertise in hazardous substance Site cleanup. No later than October 15, 2010, Respondent must submit: a) The name and address of the project engineer or geologist chosen by the Respondent; and b) in order to demonstrate expertise in hazardous substance cleanup, the resume of the engineer or geologist, and the statement of qualifications of the consulting firm responsible for the work. Respondent shall promptly notify the Department of any change in the identity of the Project Engineer/Geologist. Respondent(s) shall obtain approval from Department before the new Project Engineer/Geologist performs any work under this Order.

6.2.1 Project Ordnance and Explosive Safety Expert. The UXO/MEC work performed pursuant to this Order shall be under the direction and supervision of a qualified professional with expertise in the recognition, detection, handling and disposal methods of UXO/MEC. The professional should have an adequate understanding of the Department of Defense Explosives Safety Board Guidelines and be recognized by the United States Corps of Engineers as capable to do the necessary UXO/MEC work required under this Order. Within fifteen (15) calendar days of the effective date of this Order, Respondent must submit: a) The name and address of the Project Ordnance and Explosive Safety Expert chosen by the Respondent; and b) in order to demonstrate expertise in UXO/MEC cleanup, the resume of the Ordnance and Explosive Safety Expert, and the statement of qualifications of any consults responsible for the work. Respondent shall promptly notify the Department of any change in the identity of the Project Ordnance and Explosive Safety Expert.

6.3 Monthly Summary Reports. Within 30 days from the date the Order is signed by the Department, and on a monthly basis thereafter, Respondent shall submit a Monthly Summary Report of its activities under the provisions of this Order. The report shall be received by the Department by the 15th day of each month and shall describe:

- (a) Specific actions taken by or on behalf of Respondent during the previous calendar month;
- (b) Actions expected to be undertaken during the current calendar month;
- (c) All planned activities for the next month;
- (d) Any requirements under this Order that were not completed;
- (e) Any problems or anticipated problems in complying with this Order; and,

(f) All results of sample analyses, tests, and other data generated under the Order during the previous calendar month, and any significant findings from these data.

6.4 Quality Control/Quality Assurance (QC/QA). All sampling and analysis conducted by Respondent under this Order shall be performed in accordance with the QC/QA procedures submitted by Respondent and approved by the Department pursuant to this Order.

6.5 Submittals. All submittals and notifications from Respondent required by this Order shall be sent simultaneously to:

Mr. Daniel T. Ward, P.E., Performance Manager
Department of Toxic Substances Control
Engineering and Special Projects Office
8800 Cal Center Drive
Sacramento, California 95825
Attention: Eric Wallberg-Project Manager

Mr. Bruce H. Wolfe, Executive Officer
San Francisco Bay
Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612
Attention: Kent Aue

Mr. Cliff Covey, Director
Solano County Environmental Health
601 Texas Street
Fairfield, California 94533

Ms. Heather McLaughlin, City Attorney
City of Benicia
250 East L Street
Benicia, California 94510

6.6 Communications. All approvals and decisions of the Department made regarding submittals and notifications will be communicated to Respondent in writing by the Program Manager, Engineering and Special Projects Office, Department of Toxic Substances Control, or his/her designee. No informal advice, guidance, suggestions or comments by the Department regarding reports, plans, specifications, schedules or any other writings by Respondent shall be construed to relieve Respondent of the obligation to obtain such formal approvals as may be required.

6.7 Department Review and Approval. All response actions taken pursuant to this Order shall be subject to the

approval of the Department. Respondent shall submit all deliverables required by this Order to the Department. Once the deliverables are approved by the Department, they shall be deemed incorporated into, and where applicable, enforceable under this Order.

If the Department determines that any report, plan, schedule or other document submitted for approval pursuant to this Order fails to comply with this Order or fails to protect public health or safety or the environment, the Department may:

- (a) Modify the document as deemed necessary and approve the document as modified; or,
- (b) Return comments to Respondent with recommended changes and a date by which Respondent must submit to the Department a revised document incorporating the recommended changes.

Any modifications, comments or other directive issued pursuant to (a) above, are incorporated into this Order. Any noncompliance with these modifications or directives shall be deemed a failure or refusal to comply with this Order.

6.8 Compliance with Applicable Laws. Nothing in this Order shall relieve Respondent from complying with all other applicable laws and regulations, including but not limited to compliance with all waste discharge requirements issued by the State Water Resources Control Board or a California Regional Water Quality Control Board. Respondent shall ensure that all actions required by this Order conform with all applicable federal, state, and local laws and regulations.

6.9 Respondent Liabilities. Nothing in this Order shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past, current or future operations of Respondent. Nothing in this Order is intended or shall be construed to limit the rights of any of the parties with respect to claims arising out of or relating to the deposit or disposal at any other location of substances removed from the Site. Nothing in this Order is intended or shall be construed to limit or preclude the Department from taking any action authorized by law to protect public health or safety or the environment and recovering the cost thereof. Notwithstanding compliance with the terms of this Order, Respondent may be required to take further actions as are necessary to protect public health and the environment.

6.10 Site Access. Access to the Site and laboratories used for analyses of samples under this Order shall be provided at all reasonable times to employees, contractors, and consultants of the Department. Nothing in this Section is intended or shall be construed to limit in any way the right of entry or inspection that the Department or any other agency may otherwise have by operation of any law. The Department and its authorized representatives shall have the authority to enter and move freely about all property at the Site at all reasonable times for purposes including, but not limited to: inspecting records, operating logs, sampling and analytic data, and contracts relating to this Site; reviewing the progress of Respondent in carrying out the terms of this Order; conducting such tests as the Department may deem necessary; and verifying the data submitted to the Department by Respondent.

To the extent the Site or any other property to which access is required for the implementation of this Order is owned or controlled by persons other than Respondent, Respondent shall use best efforts to secure from such persons access for Respondent, as well as the Department, its representatives, and contractors, as necessary to effectuate this Order. To the extent that any portion of the Site is controlled by tenants of Respondent, Respondent shall use best efforts to secure from such tenants, access for Respondent, as well as for Department, its representatives, and contractors, as necessary to effectuate this Order.

For purposes of this Section, "best efforts" includes the payment of reasonable sums of money in consideration of access. If any access required to complete the Work is not obtained within forty-five (45) days of the effective date of this Order, or within forty-five (45) days of the date Department notifies Respondent in writing that additional access beyond that previously secured is necessary, Respondent shall promptly notify Department, and shall include in that notification a summary of the steps Respondent have taken to attempt to obtain access. Department may, as it deems appropriate, assist Respondent in obtaining access. Respondent shall reimburse Department in obtaining access, including, but not limited to, attorneys fees and the amount of just compensation.

6.11 Site Access for Respondent. Site owner Respondent shall grant access to other Respondents who are in compliance with this Order for the purpose of conducting activities pursuant to this Order or for activities deemed necessary by the Department to meet the objectives of this Order.

6.12 Sampling, Data and Document Availability.

Respondent shall permit the Department and its authorized representatives to inspect and copy all sampling, testing, monitoring or other data generated by Respondent or on Respondents' behalf in any way pertaining to work undertaken pursuant to this Order. Respondent shall submit all such data upon the request of the Department. Copies shall be provided within seven (7) days of receipt of the Department's written request. Respondent shall inform the Department at least seven (7) days in advance of all field sampling under this Order, and shall allow the Department and its authorized representatives to take duplicates of any samples collected by Respondent pursuant to this Order. Respondent shall maintain a central depository of the data, reports, and other documents prepared pursuant to this Order.

6.13 Record Retention. All such data, reports and other documents shall be preserved by Respondent for a minimum of ten (10) years after the conclusion of all activities under this Order. If the Department requests that some or all of these documents be preserved for a longer period of time, Respondent shall either comply with that request, deliver the documents to the Department, or provide the Department with copies of the documents prior to destruction. Respondent shall notify the Department in writing, at least six (6) months prior to destroying any documents prepared pursuant to this Order.

6.14 Government Liabilities. The State of California shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by Respondent, or related parties specified in Section 6.27, Parties Bound, in carrying out activities pursuant to this Order, nor shall the State of California be held as party to any contract entered into by Respondent or their agents in carrying out activities pursuant to this Order.

6.15 Additional Actions. By issuance of this Order, the Department does not waive the right to take any further actions authorized by law.

6.16 Extension Requests. If Respondent is unable to perform any activity or submit any document within the time required under this Order, Respondent may, prior to expiration of the time, request an extension of the time in writing. The extension request shall include a justification for the delay. All such requests shall be in advance of the date on which the activity or document is due.

6.17 Extension Approvals. If the Department determines that good cause exists for an extension, it will

grant the request and specify a new schedule in writing. Respondent shall comply with the new schedule incorporated in this Order.

6.18 Liability for Costs. Respondent is liable for all of the Department's costs that have been incurred in taking response actions at the Site (including costs of overseeing response work performed by the Respondent) and costs to be incurred in the future.

6.19 Payment of Costs. The Department may bill Respondent for costs incurred in taking response actions at the Site prior to the effective date of this Order. The Department will bill Respondent for its response costs incurred after the effective date of this Order. Respondent shall pay the Department within sixty (60) days of receipt of the Department's billing. Any billing not paid within sixty (60) days is subject to interest calculated from the date of the billing pursuant to H&SC section 25360.1. All payments made by the Respondent pursuant to this Order shall be by cashier's or certified check made payable to the "Department of Toxic Substances Control," and shall bear on the face the project code of the Site and the Docket number of the Order. Payments shall be sent to:

Department of Toxic Substances Control
Accounting/Cashier
1001 "I" Street, 4th Floor
P.O. Box 806
Sacramento, California 95812-0806

A photocopy of all payment checks shall also be sent to the person designated by the Department to receive submittal under this Order.

6.20 Severability. The requirements of this Order are severable, and Respondent shall comply with each and every provision hereof, notwithstanding the effectiveness of any other provision.

6.21 Incorporation of Plans, Schedules and Reports. All plans, schedules, reports, specifications and other documents that are submitted by Respondent pursuant to this Order are incorporated in this Order upon the Department's approval or as modified pursuant to Section 6.7, Department Review and Approval, and shall be implemented by Respondent. Any noncompliance with the documents incorporated in this Order, shall be deemed a failure or refusal to comply with this Order.

6.22 Modifications. The Department reserves the right to unilaterally modify this Order. Any modification to this Order shall be effective upon the date the modification is

signed by the Department and shall be deemed incorporated in this Order.

6.23 Time Periods. Unless otherwise specified, time periods begin from the effective date of this Order and "days" means calendar days.

6.24 Termination and Satisfaction. Except for Respondent obligations under Sections 5.12 Deed Restrictions, 5.14 Operation and Maintenance (O&M), 5.15 Five-Year Review, 5.21 Financial Assurance, 6.13 Record Retention, 6.18 Liability for Costs, and 6.19 Payment of Costs, Respondent's obligations under this Order shall terminate and be deemed satisfied upon Respondent's receipt of written notice from Department that Respondent has complied with all the terms of this Order.

6.25 Calendar of Tasks and Schedules. This Section is merely for the convenience of listing in one location the submittals required by this Order. If there is a conflict between the date for a scheduled submittal within this Section and the date within the Section describing the specific requirement, the latter shall govern.

Calendar of Tasks and Schedules

TASK	SCHEDULE
1. Identify Project Coordinator; Section 6.1;	No later than October 10, 2010.
2. Identify Project Engineer/Geologist; Section 6.2;	No later than October 15, 2010.
3. Submit Notice of Intent to Comply; Section 7	No later than October 10, 2010.
4. Submit Communication and Coordination Plan; Section 6.1.1;	Within thirty (30) days from the date Respondent is notified by Department that Individual Property Owner Orders have been issued by the Department.
5. Submit Monthly Summary Reports; Section 6.3;	Within forty-five (45) days from the effective date of this order.
6. Attend Site Remediation Strategy Meeting; Section 5.1.4;	No later than October 20, 2010.
7. Submit RI/FS Workplan; Section 5.2.2;	Within sixty(60) days of the Site Remediation Strategy

	Meeting.
8. Submit interim screening and evaluation document; Section 5.3;	As requested by Department.
9. Submit Treatability Studies; Section 5.4;	As required during Site characterization or as requested by Department.
10. Submit RI Report; Section 5.5;	Per approved RI/FS Workplan Schedule.
11. Submit Baseline Risk Assessment; Section 5.6;	Within thirty (30) days, or as required, from submittal of RI Report.
12. Submit FS Report; Section 5.7;	Within forty-five (45) days from submittal of RI Report.
13. Submit Public Participation Plan; Section 5.8;	Within forty(40) days of the Site Remediation Strategy Meeting.
14. Submit and distribute Fact Sheets;	For projected or completed key milestones, as specified in Public Participation Plan or when requested by Department.
15. Submit California Environmental Quality Act information; Section 5.9;	Within thirty (30) days after requested by Department.
16. Submit Draft RAP or Draft RAW; Section 5.10 or 5.11;	Within thirty (30) days after approval of FS Report.
Submit Information Needed to prepare the Responsiveness Summary;	Within ten (10) days of Department request.
Submit Final RAP or RAW;	Within fifteen (15) days of receipt of Department's comments.
17. Submit Remedial Design; Section 5.12;	Within sixty (60) days after Department's approval of the Final RAP.
18. Land Use Covenant; Section 5.13;	Within ninety (90) days of approval of final RAP or final RAW.
19. Submit Implementation Report; Section 5.14;	Within thirty (30) days of completion of field activities.
20. Submit O&M Workplan; Section 5.15;	Within thirty (30) days of Department's request.
21. Submit Remedial Action	Within thirty (30) days

Review Workplan; Section 5.16;	before end of the time period approved by Department to review and reevaluate the remedial action.
Implement the Remedial Action Review Workplan;	Within sixty (60) days of Department's approval of the workplan.
22. Submit Emergency Response Action Report; Section 5.19;	Within seven (7) days of an emergency response action.
23. Provide copies of sampling, data, and documentation; Section 6.12;	Within seven (7) days of receipt of Department's request.
Provide prior notice before conducting field sampling;	Inform Department seven (7) days in advance of sampling.
24. Maintain central depository of data, reports, documentation; and	Maintain central depository for a minimum of ten (10) years after conclusion of all activities conducted pursuant to this Order.
25. Provide prior written notice to Department before destroying any documentation prepared pursuant to this Order; Section 6.13.	At least six (6) months prior to destroying any documents.

6.26 Parties Bound. This Order applies to and is binding upon Respondent, and its officers, directors, agents, employees, contractors, consultants, receivers, trustees, successors and assignees, including but not limited to, individuals, partners, and subsidiary and parent corporations, as applicable. Respondent shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants that are retained to conduct any work performed under this Order at the time of retaining their services. Respondent shall condition any such contracts upon satisfactory compliance with this Order. Notwithstanding the terms of any contract, Respondent is responsible, as applicable, for compliance with this Order and for ensuring that its subsidiaries, employees, contractors, consultants, subcontractors, agents and attorneys comply with this Order.

6.27 Change in Ownership. No change in ownership or corporate or partnership status relating to the Site shall in any way alter Respondent responsibility under this Order. No conveyance of title, easement, or other interest in the Site, or a portion of the Site, shall affect Respondents' obligations under this Order. Unless the Department agrees

that such obligations may be transferred to a third party, Respondent shall be responsible for and liable for any failure to carry out all activities required of Respondent by the terms and conditions of this Order, regardless of Respondents' use of employees, agents, contractors, or consultants to perform any such tasks. Respondent shall provide a copy of this Order to any subsequent owners or successors before ownership rights or stock or assets in an corporate acquisition are transferred.

VII. NOTICE OF INTENT TO COMPLY

Not later than fifteen (15) days after the effective date of this Order, Respondent shall provide written notice, in accordance with paragraph 6.5 Submittals of this Order, stating whether or not Respondent will comply with the terms of this Order. If Respondent, or any one of them, do not unequivocally commit to perform all of the requirements of this Order, they, or each so refusing, shall be deemed to have violated this Order and to have failed or refused to comply with this Order. Respondent written notice shall describe, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondent under Health and Safety Code sections 25358.3(a) and 25355.5(a)(1)(B) or CERCLA section 107(c)(3), 42 U.S.C. section 9607(c)(3).

VIII. EFFECTIVE DATE

This Order is final and effective the date this Order is signed.

IX. PENALTIES FOR NONCOMPLIANCE

Each Respondent may be liable for penalties of up to \$25,000 for each day out of compliance with any term or condition set forth in this Order and for punitive damages up to three (3) times the amount of any costs incurred by Department as a result of Respondents' failure to comply, pursuant to Health and Safety Code sections 25359, 25359.2, 25359.4, and 25367(c). Health and Safety Code section 25359.4.5 provides that a responsible party who complies with this Order, or with another order or agreement concerning the same response actions required by this Order, may seek treble damages from Respondents who fail or refuse to comply with this Order or with another order or agreement concerning the same response actions required by this Order without sufficient cause.

DATE OF ISSUANCE: _____

Raymond Leclerc, P.E.
Assistant Deputy Director
Department of Toxic Substances Control
Brownfields & Environmental Restoration Program

DRAFT