

BEFORE THE UTAH SOLID AND HAZARDOUS WASTE CONTROL BOARD

---ooOoo---

In the Matter of:

The Ensign-Bickford Company
8305 South Highway 6
Spanish Fork, Utah 84660-0310
UTD041310962

Corrective Action Order
No. 0507019

---ooOoo---

This CORRECTIVE ACTION ORDER (ORDER) is issued by the Executive Secretary of the UTAH SOLID AND HAZARDOUS WASTE CONTROL BOARD (the Board) pursuant to the Utah Solid and Hazardous Waste Act (the Act), 19-6-101 et. seq., Utah Code Annotated 1953, as amended. The Board has adopted rules (R315-8-21) providing authority to the Executive Secretary to issue such ORDERS.

FINDINGS

1. The Ensign-Bickford Company (EBCo) Spanish Fork Plant is located near the mouth of Spanish Fork Canyon at the junction of Highways 6 and 89, Spanish Fork, Utah. EBCo is a Connecticut corporation authorized to do business in the State of Utah.
2. EBCo acquired the operations of the Spanish Fork Plant from the Trojan Corporation on December 24, 1986. Effective January 1, 1996, the Trojan Corporation was merged with EBCo, with EBCo as the surviving corporation following that merger. At that time, the facility name was changed to The Ensign-Bickford Company.

3. EBCo manufactures commercial blasting products including cast boosters and other specialty cast explosive products. Explosives utilized in those products include pentaerythritol tetranitrate (PETN) and pentolite (a mixture of PETN and TNT). Historically, the facility manufactured nitroglycerin and nitroglycerin-based products from 1941 to 1963. Nitrostarch operations began in 1964 and continued until 1976. The RCRA Facility Investigation (RFI) Work Plan (Montgomery Watson, 1998) provides detailed descriptions of manufacturing activities that have occurred at the facility.
4. EBCo is a person as defined in the UCA, 19-1-103(4) and is subject to all applicable provisions of the Act and R315 of the Utah Administrative Code (the Rules).
5. EBCo generates, treats, and stores characteristic and listed hazardous wastes as defined by R315-2 of the Rules as a result of manufacturing explosives.
6. The Trojan Corporation submitted a timely Notification of Hazardous Waste Activity, which identified the facility as a large quantity generator and a hazardous waste treatment facility. The Trojan Corporation submitted Part A of the permit application (Part A) and a Part B Permit Application (Part B) in November of 1988, to qualify for interim status as a hazardous waste treatment facility. On December 31, 2002, EBCo discontinued treatment of hazardous wastes generated during the manufacturing of explosive products in the interim status treatment units. EBCo currently manages all routine production wastes characterized as hazardous at off-site TSD facilities.
7. As an interim status facility, EBCo was required to determine if there are any environmental impacts from the release of hazardous waste or hazardous constituents from solid waste management units (SWMUs) at the facility.

8. A RCRA Facility Assessment (RFA) conducted by the Division of Solid and Hazardous Waste in September 1992 identified 60 SWMUs, which were later consolidated and regrouped into 44 SWMUs.
9. In October 1995, EBCo entered into a Consent Agreement with the Board to conduct an RFI. EBCo submitted an RFI Work Plan, which was approved by the Executive Secretary in August 1999. EBCo has completed extensive on-site soil sampling and analysis to characterize the nature and extent of contamination at the 44 SWMUs.
10. On August 29, 2003, pursuant to R315-8-21 of the Rules [Subpart S of 40 CFR 264.550-555], the Executive Secretary designated an on-site Corrective Action Management Unit (CAMU) at the EBCo facility for temporary storage of remediation wastes generated by corrective action activities at the SWMUs. Some contaminated soils excavated from SWMU 27 are temporarily stored in the Storage CAMU.
11. While the RFI Report is being prepared, EBCo proposes to conduct an interim measure program to thermally treat contaminated soils in a thermal treatment unit (TTU) in a Treatment CAMU.
12. On March 21, 2005, EBCo submitted an Interim Measure Work Plan (Work Plan) to the Executive Secretary to treat contaminated soils at the site. The Work Plan constitutes the application for the Treatment CAMU. On May 4, 2005, the Executive Secretary issued a Notice of Deficiency (NOD) to EBCo for deficiencies identified in the Work Plan.
13. In June 2005, EBCo submitted drafts of portions of the revised Work Plan to the

Executive Secretary. These submittals contained the proposed treatment goals with supporting calculations, and responses to the May 4, 2005 NOD.

14. On June 24, 2005, the Executive Secretary provided EBCo with additional comments on the operations of the proposed TTU and the proposed treatment goals.
15. On July 29, 2005, EBCo submitted a revised Work Plan to address the NOD and the additional comments of June 24, 2005.
16. The Executive Secretary has determined that the revised Work Plan is complete and all deficiencies have been addressed.
17. R315-8-21 of the Rules [40 CFR 264.552(a)] provides the Executive Secretary with authority to designate an area at the EBCo facility as a Treatment CAMU.
18. R315-8-21 of the Rules [CFR 264.552(e)] requires the Executive Secretary to specify in this ORDER, the requirements for operation of the TTU and the Treatment CAMU.

ORDER

Based on the foregoing Findings and all applicable laws and regulations, EBCo is hereby ordered to comply with the following requirements:

19. EBCo shall treat contaminated soils only in the TTU, according to the processes, procedures, and specifications detailed in the Work Plan.
20. No hazardous wastes shall be treated in the TTU. Soils proposed for treatment

in the TTU shall not contain any listed hazardous wastes or exhibit any characteristics of hazardous wastes.

21. No plastic materials or synthetic materials containing organic chlorine shall be treated in the TTU.
22. Soil containing lead contamination and Constituents of Energetic Materials (CEMs) shall be treated and managed separately from the soil contaminated with CEMs only.
23. Soil containing both unsubstituted hydrocarbon compounds and CEMs shall be treated and managed separately from the soil contaminated with CEMs only.
24. EBCo shall treat soils to meet the treatment goals listed in the Work Plan. Any soils failing to meet the treatment goals shall be re-treated until the treatment goals are met.

TRIAL BURN

25. EBCo shall perform a trial burn to demonstrate the operation and efficiency of the TTU. During the trial burn, EBCo shall demonstrate that the thermal treatment achieves at least 99% removal efficiency (RE) for HMX, TNT and RDX at the normal operating temperature.
26. EBCo shall prepare the feed soil for the RE demonstration testing with sufficient concentrations of HMX, TNT and RDX so that RE can properly be verified. The removal efficiency (RE) shall be calculated with the following formula:

$$RE = \frac{C_{feed} - C_{treated}}{C_{feed}} \times 100\%$$

Where: C_{feed} is the concentration of a contaminant in feed soil prior to treatment.

$C_{treated}$ is the concentration of the contaminant in treated soil.

27. Stack testing shall be performed as part of the trial burn. The stack tests shall be performed by qualified professionals in accordance with the appropriate EPA methods and the procedures as specified in the Work Plan.

POST TRIAL BURN OPERATIONS

28. Upon completion of the trial burn, EBCo shall submit to the Executive Secretary for approval, a trial burn report and a stack test report. These reports shall include details, including analytical data, on the test burns completed, stack test results, procedures, and operating parameters demonstrated to be adequate to achieve treatment goals.

29. Prior to receiving a written approval of the trial burn report and authorization for full-scale operation from the Executive Secretary, EBCo shall only be permitted to operate the TTU at the operating parameters that successfully demonstrated the achievement of treatment goals and the required RE. During this period, EBCo shall be restricted to a feed rate no greater than 80% of the soil feed rate used during the successful demonstration.

30. If at any time during review of the trial burn data EBCo discovers that the performance standard (treatment goals and RE) has not been met, EBCo shall immediately cease operation of the TTU and shall notify the Executive Secretary orally within 24 hours. This notification shall include EBCo's proposal for additional trial burns or other adjustments to the operation of the TTU to achieve the required performance standards. Resumption of TTU operation shall not occur without Executive Secretary approval.

FULL-SCALE OPERATIONS

31. Upon approval of the trial burn report and the stack test report, the Executive Secretary shall authorize EBCo to commence full-scale operation of the TTU in accordance with the approved Work Plan. The authorization shall be in writing and shall specify the operating conditions, operating parameters and specific Automatic Waste Feed Shut Off (AWFSO) criteria for the TTU during full-scale operations. This authorization shall be incorporated by reference into this ORDER.

OPERATION AND MAINTENANCE

32. EBCo shall maintain and operate the TTU in accordance with the Equipment Operations and Maintenance Manual referenced in the Work Plan.

33. EBCo shall maintain an Operating Record for the operation and closure of the TTU and the Treatment CAMU. Specific information to be included in this Operating Record is identified in this ORDER.

34. EBCo shall conduct routine maintenance and daily inspections of the TTU and all associated systems and equipment in accordance with the Work Plan. EBCo shall document the inspections and inspection results in a daily inspection log. The inspection log shall be maintained in the TTU Operating Record.

35. EBCo shall maintain monitoring and recording equipment in proper working condition during all times when soil is being fed into the TTU.

36. EBCo shall operate the monitoring and recording equipment as specified in the Work Plan. All monitoring data shall be maintained in the TTU Operating Record.

37. EBCo shall calibrate all monitoring instruments regularly in accordance with manufacturer-specified calibration schedules. All calibration records shall be maintained in the TTU Operating Record.
38. Contaminated soil may be fed to the TTU only when all instruments, monitoring or recording devices and AWFSO systems are operating properly.
39. EBCo shall control emissions of products of incomplete combustion from the stack such that the carbon monoxide (CO) level in the stack, corrected to 7% oxygen (O₂) in accordance with the formula given below, shall not exceed 100 part per million (ppm), dry volume, over a one-hour rolling average:

$$CO_c = CO_m \cdot \frac{21 - 7}{21 - O_m}$$

Where: CO_c = corrected CO ppm on a dry basis

CO_m = measured CO ppm on a dry basis

O_m = measure % O₂ concentration in the stack gas on a dry basis

40. The afterburner (oxidizer) temperature shall be maintained at a minimum temperature of 1710 °F, over a 10-minute rolling average, for treatment of any PAH-contaminated soil, but shall not exceed the TTU maximum operating temperature limit.
41. The afterburner (oxidizer) temperature shall be maintained at a minimum of 1500 °F, over a 10-minute rolling average, for treatment of any CEM-contaminated soil, but shall not exceed the TTU maximum operating temperature limit.

42. At any time during soil excavation, removal, transportation, or feed preparation, EBCo shall perform necessary measures to control fugitive dust generation. The fugitive dust shall not exceed the limits set forth in the Air Quality Approval Order and applicable regulations at any time during the operations.
43. EBCo shall implement all necessary water run-on and run-off control measures in the Treatment CAMU to prevent impacts from the soil stockpile to the environment.

AUTOMATIC WASTE FEED SHUTOFF SYSTEM

44. EBCo shall test and verify at least monthly all AWFSO systems for the following parameters: maximum soil feed tonnage, negative pressure loss inside the dryer, soil temperature exiting the dryer, gas temperature exiting the after burner, pressure drop over the bag house, carbon monoxide, and water, natural gas and electricity supplies.
45. A copy of each AWFSO function test shall be maintained in the TTU Operating Record.
46. In case of a malfunction of any one component of the AWFSO system, EBCo shall immediately initiate manual waste feed shut-off. EBCo shall not resume feed to the TTU until the problem causing the malfunction has been identified and corrected.
47. EBCo shall document in the TTU Operating Record the time of all automatic waste feed shut-offs, including the initiating triggering parameter(s), reason for the shut-off, the time of resuming waste feed, and specific steps or corrective action taken to repair the malfunction and avoid a similar future malfunction.

SAMPLING AND ANALYSIS

48. Samples of treated soil shall be collected in accordance with the sampling method contained in the Work Plan and the following sampling frequencies:

a) During the trial burn, one composite sample per 50 tons of treated soil from aliquots collected at ten-ton intervals.

b) During full-scale operation, one composite sample per 140 tons of treated soil from aliquots collected hourly.

49. After 15 operating days of full-scale operation, EBCo may petition the Executive Secretary for a reduction in the sampling frequency.

50. Soil samples shall be collected from the cyclones and the bag house for analyses during each 200-ton test burn in accordance with the sampling methods contained in the Work Plan. EBCo may petition the Executive Secretary to discontinue sampling of the cyclone and bag house after evaluation of the trial burn sampling results. Until approval from the Executive Secretary to discontinue this sampling is granted, EBCo shall continue to sample and analyze soils from the cyclones and bag house. Cyclone and baghouse analytical data shall be maintained in the TTU Operating Record.

51. EBCo shall submit treated soil analytical results to the Executive Secretary immediately after they become available. EBCo shall notify the Executive Secretary within 24 hours if analytical results indicate that the established treatment goals have not been met. Any soil not meeting the required treatment goals shall be re-treated until the treatment goals are achieved.

52. The Executive Secretary reserves the right to split any samples collected by EBCo or to collect additional samples of any treated or untreated soil or soil from any other location. EBCo will be offered the opportunity to split any samples collected at the site by the Executive Secretary.

53. The Executive Secretary reserves the right to require EBCo to collect additional soil samples to verify the completeness of soil remediation.

PROJECT MANAGEMENT

54. EBCo shall provide to the Executive Secretary a remote link to its computer system for accessing the following real-time data from operation of the TTU: waste feed rate, soil temperature exiting the dryer, dryer draft pressure, afterburner exhaust gas temperature, bag house pressure, stack carbon monoxide and oxygen concentrations as specified in the Work Plan.

55. EBCo shall conduct weekly project update teleconferences with the Executive Secretary's staff to discuss operation of the TTU.

56. EBCo shall provide three days prior notice to the Executive Secretary of any activities pertaining to setup of the TTU, startup operations, trial burn, stack tests, and closure of the TTU and the Treatment CAMU.

57. EBCo shall, upon request, provide access to its site at reasonable times to the Executive Secretary or his authorized representative(s) for the purpose of enforcing, monitoring, photographing, sampling, and observing activities conducted under this ORDER. The Executive Secretary and his authorized representatives shall follow and comply with all health and safety requirements of EBCo as well as any federal, State or local laws or ordinances. Nothing in this paragraph is intended or shall be construed to limit in any way the right of entry

or inspection that the Executive Secretary or the State may otherwise have by operation of law.

TTU CLOSURE

58. The TTU shall be decontaminated and disassembled in accordance with the Work Plan. Decontamination and disassembly will be completed within 30 days of cessation of treatment operations.

TREATMENT CAMU CLOSURE

59. Within 90 days of the effective date of this ORDER, EBCo shall submit to the Executive Secretary for approval, a written closure plan for closure of the Treatment CAMU. This closure plan shall address sampling, analysis, remediation and closure of all areas and soils affected by operation of the TTU and associated equipment and systems.

60. Closure of the Treatment CAMU shall commence within 30 days of closure of the TTU. Within 45 days of completion of closure of the Treatment CAMU, EBCo shall submit to the Executive Secretary for approval, certification by an independent registered professional engineer that the closure plan was implemented as approved.

61. The approved closure plan for the Treatment CAMU shall be incorporated by reference into this ORDER.

62. After the closure of the Treatment CAMU, copies of all records and data pertaining to operation and closure of the TTU and the Treatment CAMU shall be maintained on-site in the Operating Record for three years from the date of certification of the closure. This period may be extended by the Executive Secretary at any time and is automatically extended during the course of any

unresolved enforcement action regarding the EBCo facility.

63. Within 30 days of submittal of the certification of closure of the Treatment CAMU, EBCo shall submit to the Executive Secretary a written certification of completion of the Interim Measure. Within 30 days after receipt of such certification, the Executive Secretary shall determine whether EBCo has fulfilled all requirements and obligations under this ORDER, including payment in full of State invoices in accordance with Paragraph 64 and shall notify EBCo in writing of his determination. If the Executive Secretary determines that all provisions of this ORDER have been fulfilled, the notice shall constitute termination of this ORDER. In the event the Executive Secretary determines that all requirements of the ORDER have not been met, he shall provide EBCo with a written description of deficiencies. EBCo shall notify the Executive Secretary within 30 days of the receipt of the deficiencies, of activities to be undertaken by EBCo to correct the deficiencies and a timetable for completion of activities. Once all deficiencies have been corrected, the Executive Secretary shall notify EBCo in writing that all provisions of the ORDER have been fulfilled.

COST REIMBURSEMENT

64. EBCo shall reimburse the Executive Secretary for all reasonable costs in overseeing compliance with this ORDER and in reviewing any related reports and documents, and any analytical costs. The Executive Secretary shall submit quarterly invoices to EBCo identifying the oversight costs of State employees and analytical costs in accordance with the fee collection schedule in the Utah Appropriations Act. EBCo shall, within 30 days of receipt of each such invoice, remit a check to the State for the full amount of the costs, payable to the Utah Department of Environmental Quality, c/o Dennis R. Downs, Executive Secretary, Utah Solid and Hazardous Waste Control Board, P.O. Box 144880, Salt Lake City, Utah 84114-4880.

EFFECT OF ORDER

65. All conditions listed in this ORDER supersede any conflicting statements, requirements, procedures, or specifications found in the Work Plan. The Work Plan is hereby incorporated by reference into this ORDER.

ENFORCEABILITY

66. Section 19-6-113(2) of the Utah Code Annotated provides that violators of the Solid and Hazardous Waste Act, or any provision of this ORDER issued thereunder, may be subject to a civil penalty of up to thirteen thousand (\$13,000.00) dollars per day for each day of violation.

67. Nothing contained herein shall be deemed to constitute a waiver by the State of its right to initiate enforcement action, including civil penalties, against EBCo in the event of future non-compliance with this ORDER, the Act, or the Rules, nor shall the State be precluded in any way from taking appropriate action to abate an imminent endangerment to public health or the environment should such a situation arise at the EBCo facility.

68. Notwithstanding any other provision of this ORDER, the Executive Secretary may impose additional requirements as necessary to protect human health and the environment.

OPPORTUNITY FOR HEARING

69. This ORDER is effective immediately and shall become final unless EBCo requests a hearing within 30 days, in accordance with the provisions of R315-12-3 of the Utah Administrative Code.

Dated this _____ day of _____, 2005

By: _____
Dennis R. Downs, Executive Secretary
Utah Solid and Hazardous Waste Control Board