



Conestoga-Rovers & Associates Project Summary

KEY PROJECT ELEMENTS

- Design/Build
- Stabilization
- Dredging
- Waste Disposal

FORMER SHOOTING RANGE TEXAS



CLIENT: CONFIDENTIAL
DURATION: 1997 - 2001
COST: \$2,000,000

CRA was retained to perform Phase I and Phase II Site Assessments at a former shooting range in Texas. From 1983 to 1995, the site was used as a gun club firing range. The range included separate pistol and rifle ranges, and a skeet and trap range.

The Phase I and Phase II assessments concluded that the upper 6 inches of soil contained lead concentrations that exceeded the Texas Natural Resource Conservation Commission's (TNRCC's) Risk Reduction Standard (RRS) medium specific concentrations (MSCs). The assessment also concluded that sediments within two ponds and wetlands had similar concentrations of lead. To achieve an acceptable cleanup, CRA's client entered into the Voluntary Cleanup Program.

CRA then developed a cost-effective remedial plan to comply with regulations, permitting requirements, and our client's time schedule. The significant challenge was to engineer a solution that reduced the contaminated soils to a non-hazardous, industrial solid waste capable of meeting the Universal Treatment Standards for lead. To accomplish this, the lead shot, bullets, and bullet fragments had to be removed and the soils had to be treated to stabilize the lead. A human health and ecological risk assessment were completed to negotiate a cleanup level.

CRA performed a treatability study to determine a cost-effective and technically suitable treatment. The results showed that a blend of flyash, lime kiln dust, and Portland cement worked when tested using the Toxic Characteristic Leaching Procedure (TCLP).

To remove the lead shot, bullets, and fragments from the soil, CRA Services, the Construction Division of CRA, worked with regional vendors and developed a plan to screen the soils. This screening process enabled the shot to be recycled, further reducing project costs by eliminating on-site management and disposal of hazardous wastes.

In May of 2001, CRA Services mobilized equipment and labor to the project site and began remedial activities. The completed tasks include:

- Ecological Risk Assessment
- USACOE wetlands permitting
- Dredge sediments from the ponds
- Screen and treat soils and sediments to achieve a non-detect result using TCLP
- Disposal of all treated soils at a local municipal landfill
- Perform all confirmatory sampling and analysis in the affected area
- Design and implement a wetlands restoration plan

The work was completed in December of 2001. Through skillful negotiations with the TNRCC, CRA managed the project within the Client's budget while satisfying TNRCC's requirements.

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