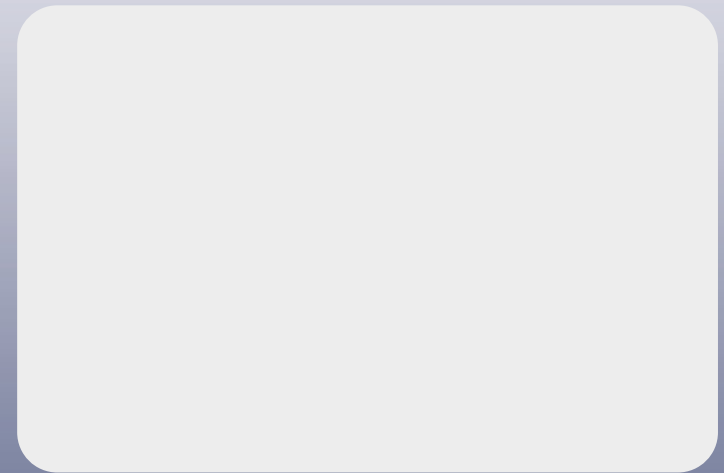


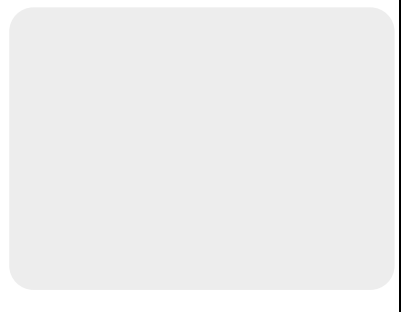
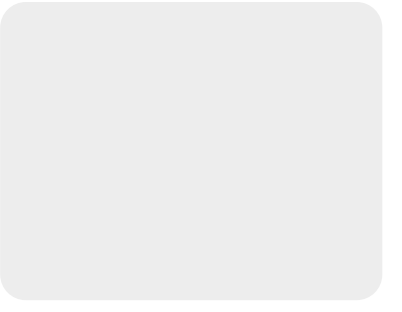

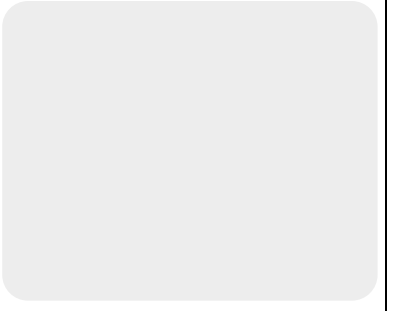



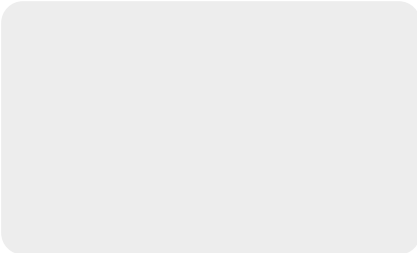
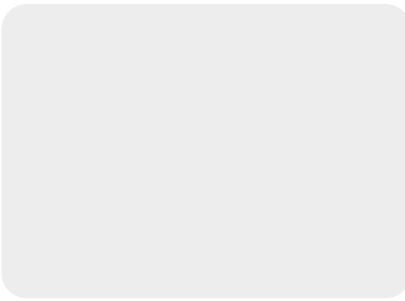
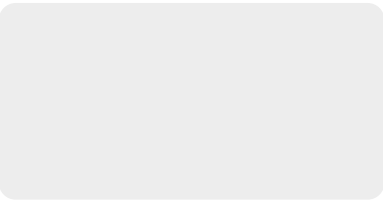
Packaged Polymer Injection Dewatering System Case Studies

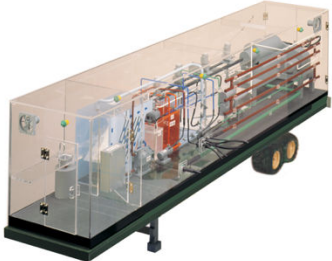

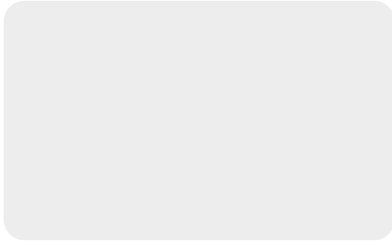
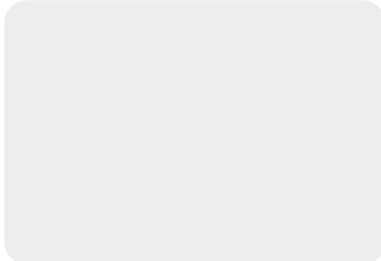
Elgin Separation Solutions

2019 – Rev C



Case Study #:	Number 1	Number 2	Number 3	Number 4
Industry:	Oil & Gas, Mining and Civil Waste Management	Environmental Waste Management	Pipeline Construction	Industrial Waste Water
Application:	Treatment of Waste Drilling Fluids for Recycling	Treatment of Liquid and Solid Waste for Recycling	Water-Based Horizontal Drilling Fluid Solids Control	Removal of Contaminated Colloidal and Ultra-Fine Solids
Location:	Brisbane, Australia	Sydney, Australia	West Texas, USA	Montreal, Canada
Configuration:	20' Explosion Proof HMI Dewatering System with VFD Driven ESS-1450HD2 Centrifuge.	20' Non-Explosion Proof HMI Dewatering System with MVD ESS-1450HD Centrifuge.	Trailer-Mounted ESS-1450 High Speed Centrifuge with Select Flocc™ Polymer Dosage System.	Mobile ESS-1967HD2 Integrated Treatment Package Mated with a ELGIN Primary Treatment System
Application Image:				
Objective:	Wastewater Treatment Sludge Dewatering in Order to Facilitate Landfill Disposal or Reuse.	Preparation of Recycled Water-Based Drilling Fluids to Meet Customer Specified Weights.	Improve Drilling Fluid Quality, Reduce Water Make-Up, and Lower Waste Disposal Costs.	Removal of Contaminated / Hazardous Colloidal Solids from a Wastewater Treatment Process.
Results:	In the first month of operation, the system processed 400 cubic meters (500 tons) of slurry. Process reduced the waste to just 70 tons, just 15% of the original volumes representing a significant commercial and environmental benefit in the volume of solid wastes being disposed.	Application of system effectively treated the waste effluent generated from a drilling fluid recycling facility responsible for the treatment of waste drilling fluids collected from a variety of drilling operations.	During the course of project, the daily drilling fluid and waste management operating costs were lowered by \$1,060 USD per day. This was accomplished by a significant reduction in disposed drilling fluid, reduced consumption of make-up water, and lowered volume of generated waste.	Elgin's ESS-1967HD2 40' HMI Dewatering System was integrated with a wastewater treatment system to remove contaminated colloidal and ultra-fine solids from a waste management process. This effectively allowed for the remaining solids to be recycled for other construction purposes.

Case Study	Number 5	Number 6	Number 7	Number 8
Industry	Oil & Gas Drilling	Oil & Gas Drilling	Waterwell Drilling	Coal Bed Methane Drilling
Application	Closed Loop Water-Based Drilling Fluid Solids Control	Closed Loop Water-Based Drilling Fluid Solids Control	Water-Based Horizontal Drilling Fluid Solids Control	Colloidal Solids Removal
Location	Algeria, Africa	Oklahoma, USA	California, USA	Perth, Australia
Configuration	53' Semi-Trailer Mounted, ESS-1450 MVD Centrifuge with Dual-Polymer Injection System and Climate Control.	20' HMI Dewatering System with MVD ESS-1450 Centrifuge, Dual Polymer & Acid Injection System & Air Conditioning.	Trailer-Mounted ESS-1450 High Speed Centrifuge with Select Flocc™ Polymer Dosage System.	20' Skid Mounted ESS-1450HD2 Centrifuge with Primary Scalping and Select Flocc™ Polymer Dosage System.
Application Image				
Objective	Management of Drilling Fluid with an Integrated Polymer Feed System for Water-Based Drilling Fluid.	Management of Drilling Fluid with an Integrated Polymer Feed System for Water-Based Drilling Fluid.	Management of Drilling Fluid with an Integrated Polymer Feed System for Water-Based Drilling Fluid.	Management of Drilling Fluid with an Integrated Polymer Feed System for Water-Based Drilling Fluid.
Results	In response to extreme heat and weather conditions, this fully air-conditioned and insulated system was built into a 53' semi-trailer. Though no quantitative data was collected as a result of its deployment, it operated for more than 8 years before being decommissioned.	Improvement in drilling fluid quality that resulted in a reduction in a 24-day well drilling fluid bill of \$15,000 and a reduction in the waste disposal bill of \$4,000. This \$19,000 in generated savings was achieved by installing the dewatering system as the center-piece of the closed-loop solids control system.	System was deployed in response to California construction regulations restricting the contact of native soils with drilling fluids. By installing the Elgin Dewatering System, the customer was able to deploy a fully closed-loop system that allowed full management of the drilling fluid without requiring a mud pits or stock-piling of solids on the ground. All solids were discharged directly to a solids bin.	Elgin's Dual ESS-1967HD2 Mobile XP Polisher has allowed for the full recycling of water in order to create a closed-loop drilling fluid system. Application of system on 12.4 ppg mud at a flow rate of 165 gpm. Has resulted in \$1,200 in raw water savings per well.

Case Study #:	Number 9	Number 10	Number 11	Number 12
Industry:	Oil & Gas Drilling	Petrochemical	Oil & Gas Drilling	Oil & Gas Drilling
Application:	Closed Loop Water-Based Drilling Fluid Solids Control	Mobile Refinery Wastewater Treatment	Closed Loop Water-Based Drilling Fluid Solids Control	Closed Loop Water-Based Drilling Fluid Solids Control
Location:	Siberia Russia	Siberia, Russia	Port Harcourt, Nigeria	Eket, Nigeria
Configuration:	53' Climate-Controlled Semi-Trailer Mounted ESS-1450 MVD Centrifuge with Dual-Polymer Injection System.	56' Trailer-Mounted, Dual-Deck Wastewater Treatment Facility with ESS-1450 MVD Centrifuge, Lamella Separator, GAC Filtration, and Polymer Injection.	20' Non-Explosion Proof HMI Dewatering System with VFD ESS-1450HD2 Centrifuge, Dual Polymer & Acid Injection System & Air Conditioning.	20' Non-Explosion Proof HMI Dewatering System with VFD ESS-1450HD Centrifuge, Dual Polymer & Acid Injection System & Air Conditioning.
Application Image:				
Objective:	Management of Drilling Fluid with an Integrated Polymer Feed System for Water-Based Drilling Fluid.	Clean-up of dozens of remote, abandoned waste sludge ponds that were contaminating shallow subsurface water tables.	Management of Drilling Fluid with an Integrated Polymer Feed System for Water-Based Drilling Fluid.	Management of Drilling Fluid with an Integrated Polymer Feed System for Water-Based Drilling Fluid.
Results:	System was deployed in response to new regulations restricting the contact of native soils with drilling fluids. By installing the Elgin Dewatering System, the customer was able to deploy a fully closed-loop system that allowed full management of the drilling fluid without requiring mud pits, ponds or stock-piling of solids on the ground.	The mobile treatment system was able to treat a myriad of sludge ponds. Over the course of the first year, the treatment system closed 17 abandoned waste drilling ponds over an area of 90 square kilometers.	Improvement in drilling fluid quality that resulted in a reduction in a 20-day well drilling fluid bill of \$9,000 and a reduction in the waste disposal bill of \$6,000. This \$15,000 in generated savings was achieved by installing the dewatering system as the center-piece of the closed-loop solids control system. It was estimated that the improved ROP reduced the drill time by one day.	Significant improvement in drilling fluid quality that resulted in a reduction in the monthly drilling fluid bill of \$9,500 and a reduction in the waste disposal bill of \$7,500. This \$17,000 per month in generated savings was achieved by installing the dewatering system as the center-piece of the closed-loop solids control system.