Vulcan Drying Systems
Indirect Fired Thermal Desorption Unit

1414 Riley Industrial Dr.,
Moberly, MO 65270
sales@vulcandrying.com
660.263.7474
vulcandryingsystems.com
Vulcan Drying Systems is the global leader in the environmental remediation, thermal drying and calcining industries, specializing in the processing and recovery of a variety of materials, including frac sand, automotive shredder residue, bone meal, drilling muds, tank bottom sludge, and iron ore. Our indirect fired rotary kilns, electrically heated units and hot oil processors are currently being used in numerous remediation and recovery projects worldwide.

Vulcan Drying Systems are able to capture waste energy and convert waste materials to beneficial use, helping to reduce your company’s disposal costs and environmental footprint. Our experienced and highly-qualified team can design and manufacture a system to fit your specifications and offer set-up, commissioning, training and maintenance support services over the lifetime of your project.

Visit our website to view videos, case studies and information on drying, calcining and thermal desorption processes and applications. Our knowledgeable staff will answer any questions you may have and will provide you with a variety of services in the design of your system, including drafting, mass and energy balance, ASPEN simulation, project management, engineering, and repair and preventative maintenance.

From agriculture to mining to the oil and gas industry, Vulcan Drying Systems can design a solution for almost any material or application. Let us develop a turnkey solution and manufacture the ideal system to meet your processing needs.
Stockpiled drilling muds are transferred to a 1 feed hopper mounted on a 2 pugmill of the Primary Treatment Unit (PTU) by a backhoe or skid loader. From the pugmill, material travels via a 3 transfer auger to the system's 4 airlock, then through the 5 feed auger and into the PTU.

The PTU is a 6' diameter x 35' length, 3 heat zone, indirect fired 304 stainless steel 6 rotary kiln with 7 combustion chamber. The operating temperature of the drum is up to 950°F (510°C). The rotary kiln is housed in a combustion chamber with six (6) 2.7 MMBtu/hour 8 burners, totaling 16.2 MMBtu/hour of heat being transferred to the rotary kiln. The kiln operates in an oxygen-deficient and slightly negative atmosphere. Vapors from the contaminated soil are pulled out of the system in the opposite direction of the material flow.

The vapor from the PTU is pulled into the high-efficiency 9 quench scrubber that uses oil as the quench liquid, which is stored and redistributed in the 10 quench oil tank. The quench operates at 250°F (121°C) and removes dust particulate, as well as condensing the heavier hydrocarbons in the vapor stream.

The vapor not condensed in the quench scrubber is pulled through the 11 knock-out pot to our custom-built vertical helical heat exchanger. This unit is an 12 air-cooled helical rotary liquid chiller with 155 nominal tons of cooling provided by dual compressor circuits which reduces the vapor temperature to 70°F (21°C).

Fluid from the knock-out pot (the condensed water, oil, and sludge) is pumped through a series of 13 oil/water separator filters before being transferred to onsite storage tanks.

The non-condensable gases are pulled from the knock-out pot and pushed into the 14 Secondary Treatment Unit, also known as the thermal oxidizer, by an 15 induced draft fan where all remaining hydrocarbons are destroyed at temperatures of up to 2,000°F (1,093°C) with a residence time of up to two seconds.

The processed solids exit through the discharge system which consists of a 16 jacketed screw conveyor to cool the solids and an 17 airlock.

This entire operation is managed from the 8' wide x 40' long 18 control room that houses the programmable logic control, starters, and variable frequency drives for operating and monitoring the plant from a single console. Two fully-functional remote control panels are mounted outside right next to the equipment.
Solutions For Your Industry

This system can be custom-built to provide a solution to the environmental issues listed below, reducing your company’s cost and environmental footprint.

Soil Remediation
Drill Cuttings
Tank Bottoms & Sludges
Mercury Contamination
Pesticide Contamination
Pyrolysis
Precious Metal Recovery

For more information or to request a quote, please visit our website.

vulcandryingystems.com