

**Vanguard Operating, LLC
Mamm Creek Field, Colorado**

**Exploration and Production Waste Management Plan
Management of Sand Removed from Production Separators**

This Waste Management Plan (WMP) outlines the operational requirements to be followed when temporarily storing sand on the Guccini-66S92W/20NWNE location (Site) in support of lease operations. Sand removed from production separators, from multiple production sites within Vanguard Operating, LLC's (Vanguard) Mamm Creek Field, will be temporarily stored at the Site. Once a full truck load of sand has accumulated, the sand will be transported to a licensed treatment and recycling facility. A topographic and aerial photographic map with the site boundaries is provided on Figures 1 and 2, respectively. Only sand removed from separators in the Mamm Creek field will be temporarily stored at the Site. No other exploration and production (E&P) waste will be stored or managed at the Site except for wastes directly associated with the operation of the Guccini-66S92W/20NWNE wells and production equipment. Any changes made to this E&P WMP will be provided to the Colorado Oil and Gas Conservation Commission (COGCC) via a Sundry Notice.

Transportation Operations to Temporary Storage Facility (Guccini-66S92W/20NWNE)

Sand removed from separators will be transported to the Site by contractors hired by Vanguard. Personnel designated to handle this sand will be trained and informed of the nature and risks posed by this type of waste. In addition, these individuals shall be required to wear appropriate personal protective equipment while handling the sand. All employees involved with the handling of the sand will be trained to understand and implement the WMP components that are relevant to their responsibilities. Any spills or releases occurring during transport will be reported to Vanguard environmental staff immediately. Contractors hired to transport the sand to the Site will not be responsible for reporting any spills or releases to the COGCC. This will be the responsibility of Vanguard environmental staff.

Site Security and Containment

Once the sand has been transported to the Site, it will be deposited in storage containers designated to store only this sand. These containers will be labeled accordingly. All personnel responsible for transporting and hauling sand will be trained and made aware of these containers. Vanguard staff will communicate all necessary information to the contractors responsible for safely depositing the sand. While storing sand, the containers should be:

- In good condition and not leaking;
- Compatible with the materials it is storing to avoid corrosion or chemical reactions that could result in fire;
- Kept closed except when adding waste;
- Not opened, handled, or operated in ways that could cause leaks or spills; and

- Clearly marked and labeled to identify what is being stored.

The storage containers will be placed within double-lined secondary containment to contain any accidental releases during loading, unloading and precipitation events. Please reference Figure 3 which details the storage containers and the secondary containment system. The Site will be visited daily by Vanguard operational staff. They will conduct daily inspections on the volume of sand being stored in the containers, presence of any liquids, and the integrity of the secondary containment. Vanguard Operating, LLC is the surface property owner and access to the Site is limited to staff responsible for the Site and its associated production infrastructure.

Permanent Disposal Operations (Shipping)

Procedures for loading the sand for transportation will be designed to reduce the risk of loss, leakage, or exposure to hazardous materials during loading and shipment. Shipments will be tracked and documented to communicate potential hazards. Specific requirements include manifesting, placarding transport vehicles, choosing appropriate waste transporters and shipment destinations, recordkeeping, and reporting.

After being temporarily stored at the Site, the sand will be transported by Vanguard contractors to Reams E&P Treatment and Recycling Facility in Naturita, Colorado. This facility specializes in the treatment and recycling of down-hole E&P waste streams. The following documentation procedures will be followed to comply with COGCC regulations:

1. A Waste Generation Manifest Log will be generated and maintained for a period of no less than five years after the project completion date for the transportation of the materials from the Site to the disposal location mentioned above. The Waste Generation Manifest Log will include the following information:
 - The date of the transport;
 - The identity of the waste generator;
 - The identity of the waste transporter;
 - The location of the waste pickup site;
 - The type and volume of waste; and
 - The name and location of the treatment or disposal site.
2. A certificate of delivery will be obtained from Reams E&P Treatment and Recycling Facility.
3. All records will be available to the COGCC upon request.

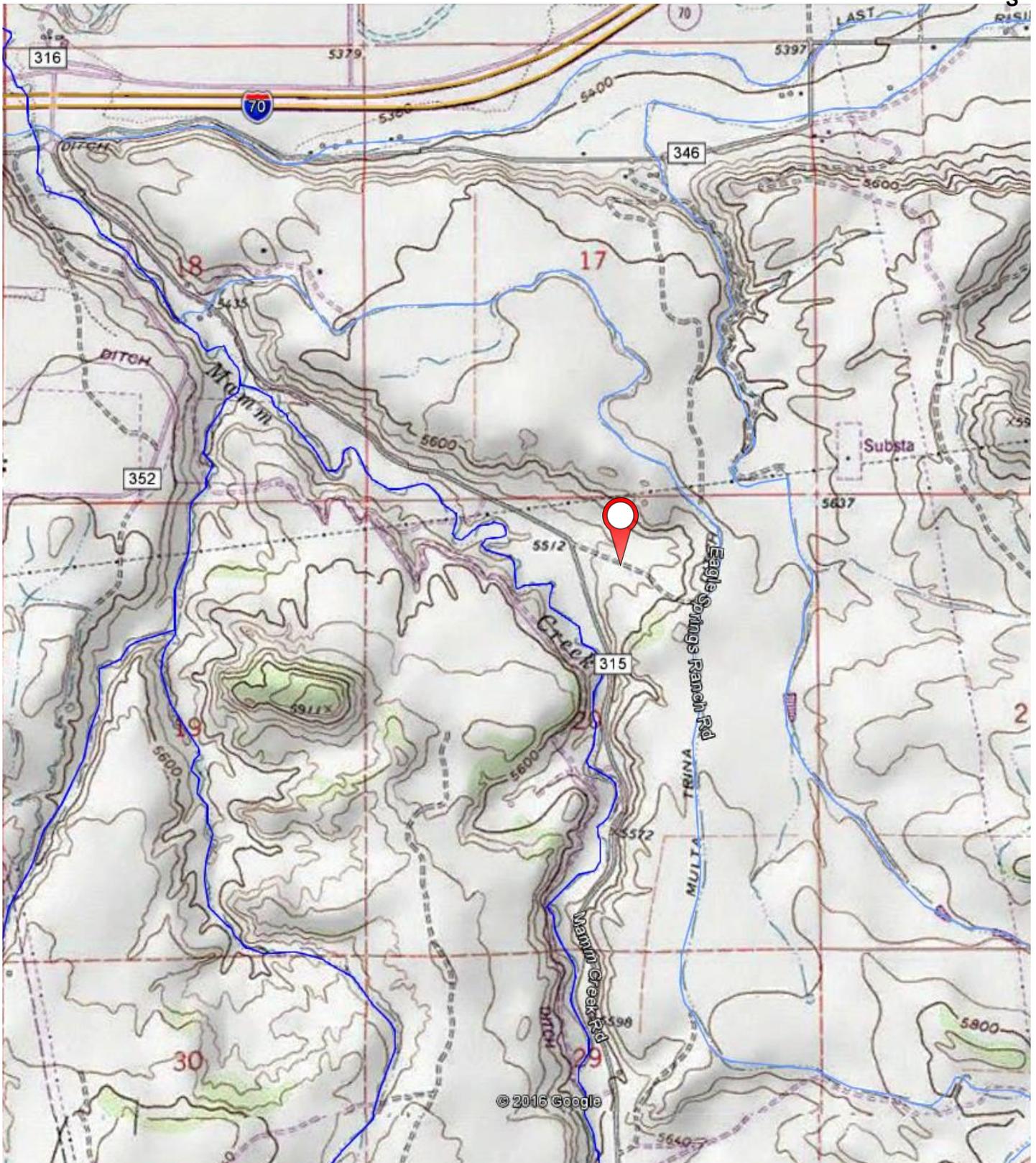
Attachments:

Figure 1 – Site Location Map

Figure 2 – Site Map

Figure 3 – Containment Detail

FIGURES

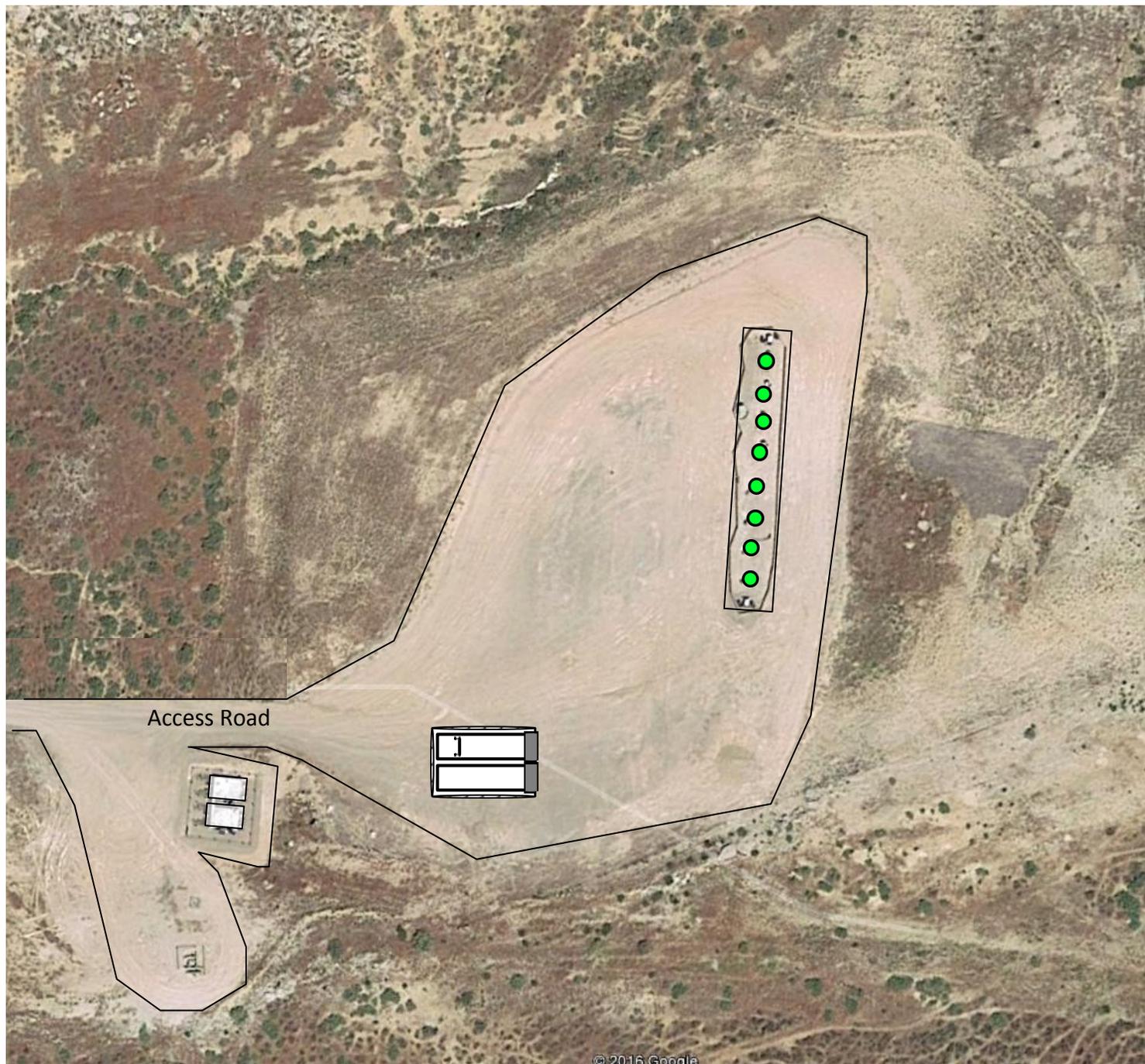
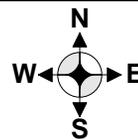


Legend

-  Site Location
-  Stream
-  Canal

Figure 1 - Site Location Map
Guccini-66S92W
NWNE SEC 20-T6S-R92W
Garfield County, Colorado
Vanguard Operating, LLC





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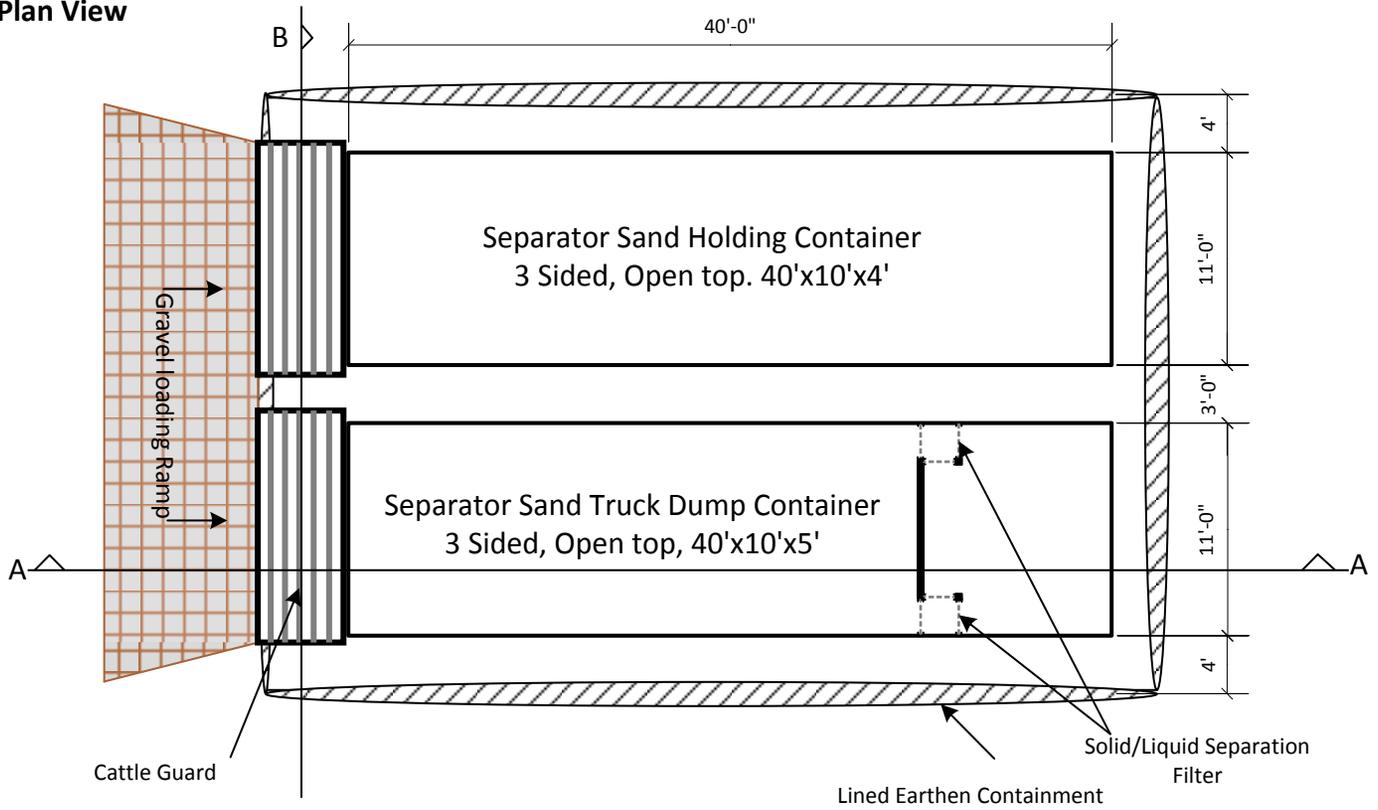
Legend

-  Wellhead
-  Separator
-  Temporary Sand Storage Container

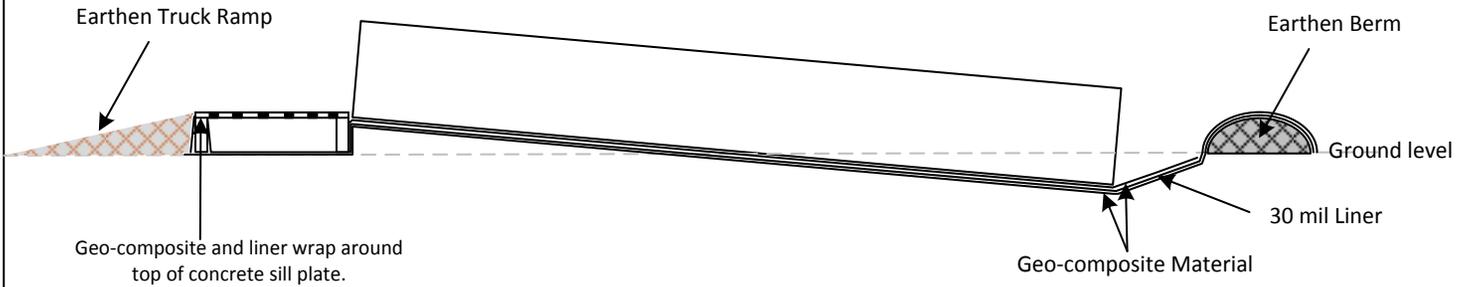
Figure 2 - Site Map
Guccini-66S92W
NWNE SEC 20-T6S-R92W
Garfield County, Colorado
Vanguard Operating, LLC



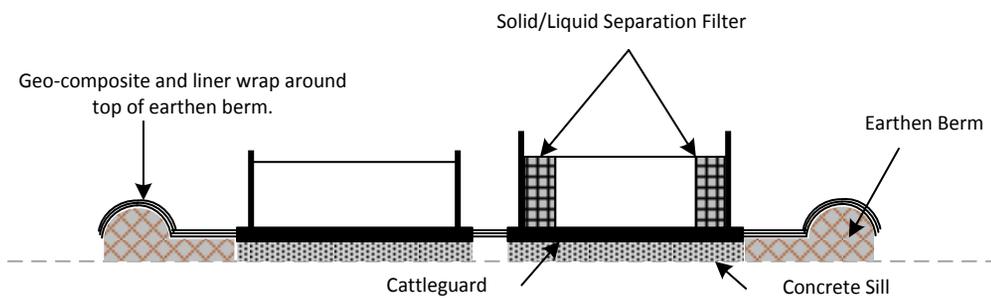
Plan View



A



B



Not to Scale

Figure 3 – Containment Detail

Guccini-66S92W
 NWNE SEC 20-T6S-R92W
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 Vanguard Operating, LLC

