



EXPLORATION & PRODUCTION WASTE MANAGEMENT PLAN

In compliance with Weld County Ordinance Sec. 21-5-450, COGCC Rules 905 and 1000 Series Reclamation Regulations, and the Drill Cuttings Management Policy (9/15/14), the following describes Mallard Exploration's (Mallard) general plan for handling and disposing of Exploration & Production (E&P) wastes.

Mallard does not anticipate conducting any on-site disposal or use land-application for waste management. All wastes generated on location will be disposed of at a permitted commercial waste facility. Each individual waste stream hauled off location will be accompanied with an approved waste profile and manifest detailing waste characteristics and volume. The waste profiles are established using knowledge of process.

Waste Stream Volumes, Frequency & Storage

The following table lists the anticipated waste streams generated on a per well basis. Volumes and frequencies are estimates based on Mallard's development of wells in the area.

Waste Stream	Est. Volume	Storage Method	Treatment Method	Disposal Frequency	Waste Disposal Location*	Duration of Waste Stream (days/well)	Phase
Surface Cuttings	150 tons/well	High Wall Containment		6 Loads/day	Commercial Solids Disposal - Pawnee	1	Drilling
Production Cuttings	700 tons/well	High Wall Containment		7 Loads/day	Commercial Solids Disposal - Pawnee	4	Drilling
Drilling Fluids	140 bbls/well	Storage Tanks		Recycled	N/A	4	Drilling
General Trash	40 yards/weekly	Roll Off Dumpster		1 dumpster / week	Commercial Landfill - Waste Management	92	Drilling & Completions
Drill Out Frac Sand	50 tons/well	High Wall Containment		1 Loads/day	Commercial Solids Disposal - Pawnee	2	Completions
Drill Out Water	1000 bbls/well	Closed Loop Frac Tanks	Biocide	3 Loads/day	Commercial Liquids Disposal - NGL C9	2	Completions
Flowback Water - 30 Days	1500 bbls/day	Sealed Tanks		Pipeline	Commercial Liquids Disposal - NGL C9	30	Completions
Flowback Sand - 30 Days	1 bbl/day	Sealed Frac Tank		Monthly	Commercial Solids Disposal - Pawnee	30	Completions
Produced Water - 6 Months	700 bbls/day	Sealed Tanks		Pipeline	Commercial Liquids Disposal - NGL C9	180	Production
Produced Water - Life of Well	50 bbls/day	Sealed Tanks		Pipeline	Commercial Liquids Disposal - NGL C9	Life of Well	Production
Tank Bottoms	5 bbls/month	Sump Tank		1 / month	Commercial Liquids Disposal - NGL C9	Life of Well	Production
Oily Soils	Varies	Trucked off-location	Characterized, removed, and disposed of		Commercial Solids Disposal - Pawnee	Life of Well	Production

Waste Disposal Locations

Mallard has active waste profiles with the following facilities:

Commercial Solids Disposal

Pawnee Waste, LLC

47368 County Road 118, Grover, CO 80729

(970) 889-0006

Commercial Liquids Disposal

NGL Energy Partners C9

57610 County Road 95, Grover, CO 80729

API #05-123-40194

Commercial Landfill

Waste Management North Weld Landfill

40000 Weld County Road 25, Ault CO 80610

970-686-2800

Waste Minimization, Reuse and Recycling

Waste minimization efforts are pursued where economically feasible. Prevention of waste generation is the first step and is the best management practice is to avoid creating waste. The following waste prevention techniques shall be utilized whenever possible:

- Completely empty one container before opening another of the same product.
- Segregate waste and recyclables at the source.
- Require contractors to take unused products with them for use at the next applicable project.

Drilling fluids are anticipated to be re-mixed and re-used on location during drilling operations. Upon completion of drilling operations, the drilling fluid is returned to the provider for re-use on the next project.

At this time Mallard does not anticipate using recycled or reused water due to constraints in the scheduling and availability. If available, a small amount of recycled or reused water could be used during the drilling and completion phases. If opportunities for reuse and recycling of water become practicable, a reuse and recycling plan will be submitted as described in Rule 905.a.(3).

Best Management Practices

- Wastes stored onsite will be stored in compatible containers that are regularly inspected to ensure they are in good condition and free of excessive wear, structural issues or other defects that may impact effectiveness.
- All drill cuttings generated during drilling operations are transported offsite with proper manifesting for disposal at facilities properly permitted to receive E&P waste.
- Drilling fluids will be stored on site and recycled for use in future drilling operations.
- Advanced oil-based mud systems which target the reduction of aromatics will be utilized
- A temporary impermeable synthetic or geosynthetic liner with foam type berms will be utilized under the drilling rig, mud tanks, shakers, and drill cuttings bins. A liner will also be used under completions equipment.

- Produced water is disposed of at an offsite location via a permitted UIC well designed specifically for produced water disposal.
- Trash or other waste materials will not be buried or burned on location.
- All surface trash, debris, and material not intrinsic to the operation of the facility will be stored in a roll off dumpster and disposed of at a commercial solid waste facility.
- Trash receptacles (roll off dumpster) will be designed, maintained, and operated to exclude wildlife, and to protect public safety, the environment, and wildlife from exposure to overflowing, leak prone, or insecure trash receptacles.
- Unforeseen wastes not listed in the Waste Stream table will be stored and disposed of in accordance with all regulations applicable to the specific waste.

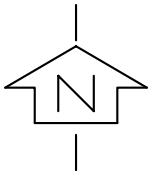
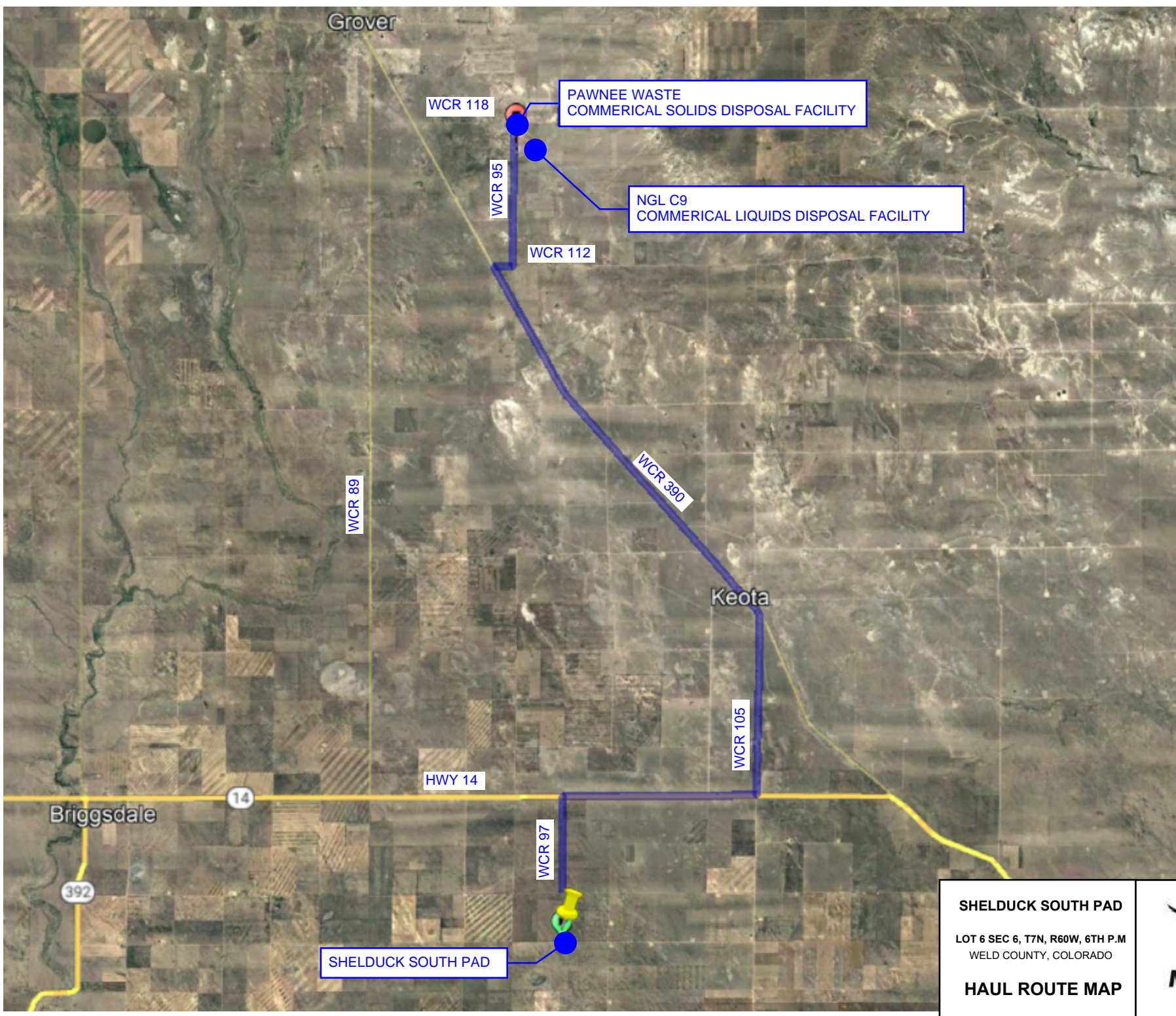
Haul Routes

Refer to location specific haul routes.

Record Keeping & Documentation

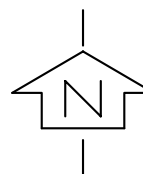
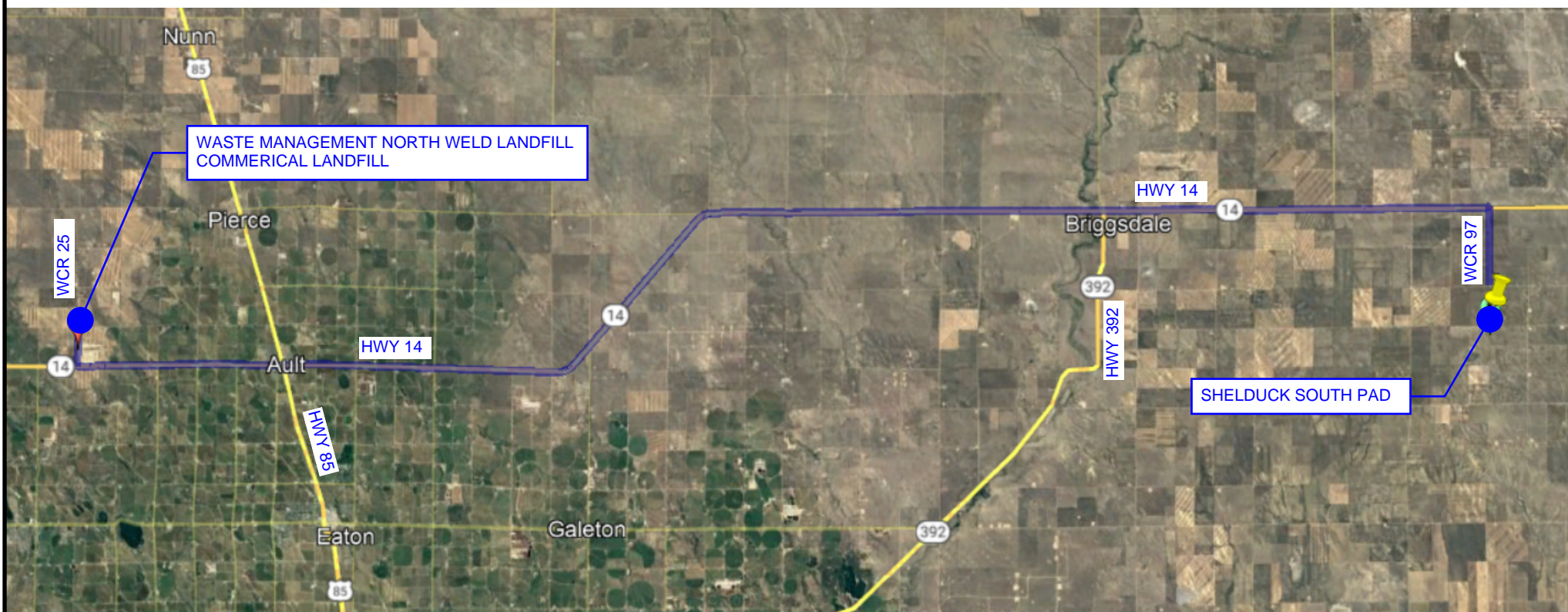
Prior to transporting of the waste, Mallard will ensure that a waste profile is on file with the disposal company, or will, characterize the waste for profiling. When the waste is sent for disposal, the waste will be identified on the waste shipping manifest. Any associated sampling data and/or SDS information will be kept with the waste profile documentation.

Records of waste characterization profiles with supporting documentation, disposal manifests, and transportation documents shall be maintained by Mallard. Records may be retained as a hard copy or as an electronic copy. Record will be maintained for no less than 5 years.



SHELDUCK SOUTH PAD
LOT 6 SEC 6, T7N, R60W, 6TH P.M
WELD COUNTY, COLORADO
HAUL ROUTE MAP





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