CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Highlands Test Wells
Proposed Implementation Date:	October 2016
Proponent:	Highlands Montana Corporation 2401 East 2nd Ave. Ste. 150 Denver, CO
Location:	Section 16-T5N-R52E (Common Schools Trust)
County:	Custer

I. TYPE AND PURPOSE OF ACTION

Highlands Montana Corporation has requested permission to drill two new production wells, an injection well and construct a temporary evaporation pit on state land in Sec. 16 T5N-16E. This checklist environmental assessment contains additions and revisions to the project approved in the 9/12/16 checklist environmental assessment. This document addresses an additional production well, the Helios 5-52 16-32, and revisions to the evaporation pit, which is proposed to be relocated with a smaller disturbance area.

The Helios 5-52 16-22 was previously reviewed and approved, and has been drilled in the SE¼NW¼ of Section 16 with a 2.0 acre well pad. This well was drilled to a vertical depth of approximately 5,300 feet into the Muddy Sandstone formation of the Colorado Group. The proponent anticipates water production from this well, in which a temporary evaporation pit would be constructed to retain the produced water. The temporary evaporation pit would have a disturbed area of 3.6 acres and be located in SE¼NW¼ of Section 16 directly south of the Helios 5-52 16-22 wellpad. Providing the well tests are economic, an injection well would be drilled in the NE¼NW¼ and the evaporation pit would subsequently be reclaimed. The formation in which the injection well would inject to will depend upon formations evaluated during the drilling of the production well.

An additional production well, the Helios 5-52 16-32, would be located in the SW¼NE¼ of Section 16 with a 1.1 acre well pad. This well would be drilled to the Eagle formation of the Mesa Verde Group. The proponent does not anticipate water production from this well.

If tests indicate that commercial quantities of recoverable oil and/or gas are not present, then the wells would be plugged in conformance with standards approved by the Montana Board of Oil & Gas Conservation and the site, including the temporary evaporation pit, would be reclaimed. The area would be contoured back to the natural slopes and the topsoil redistributed over the area. The site would be returned to native rangeland.

See attached map.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

Highlands Montana Corporation – Oil and Gas lessee OG-43284-16

State of Montana, Department of Natural Resources and Conservation (DNRC) - Surface and Mineral Owner. Land Use Specialist, Aaron Kneeland, completed a field visit to all three proposed pad sites and the evaporation pit on October 6, 2016

Balsam Inc. – Surface Lessee, DNRC Ag and Grazing Lease #5577

Montana Board of Oil & Gas Conservation (MBOGC)

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

Highlands Montana Corporation has been approved by the Montana Board of Oil and Gas Conservation to drill the Helios 5-52 16-22, and has applied to drill the Helios 5-52 16-32. Highlands has also applied to the MBOGC to drill an injection well and construct the temporary evaporation pond. This revised plan has also been approved by the Montana Sage Grouse Habitat Conservation Program due to this section being located within Greater Sage-Grouse general habitat.

3. ALTERNATIVES CONSIDERED:

No Action Alternative: The proposed wells and evaporation pond would not be drilled. Current non-motorized recreational use and grazing leasing would continue.

Action Alternative: Highlands Montana Corporation would have permission to construct well pad sites, drill the wells and construct the temporary evaporation pit in Section 16 T5N-16E. Current non-motorized recreational use would continue, and the current grazing lease would be modified for the loss in grazing land.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

Most of Section 16 T5N-16E is made up of the Tullock Member of the Fort Union Formation which consists of sandstone with shale and limestone. The northeast corner of this section is composed of alluvial terrace deposits that can be up to 50 feet deep with gravel, sand, silt and clay. Small areas of

the drainages in this section are the Lebo Member of the Fort Union Formation which consists of sandstone, siltstone, shale and ironstone.

Soils on this section where the access road, well pads and evaporation pit would be constructed are loams and complexes. Helios 5-52 16-22 would be constructed on Cambeth-Cabbert-Yawdim complex in the SE¼NW¼ of Section 16. Helios 5-52 16-32 would be constructed on Sonnett-Sonnett complex in the SW¼NE¼ of Section 16. The proposed evaporation pond would be constructed mostly on Cambeth-Cabbert-Yawdim complex directly south of Helios 5-52 16-22. The proposed injection well would be on a site that has the Cambeth-Cabbart-Yawdim complex, the Sonnett-Sonnett complex and the Sonnett loam in the NE¼NW¼ of Section 16.

Soil characteristics at this site include: slight to moderate erosion hazard, low to moderate resistance to soil compaction, high to moderate potential for soil restoration and moderate to high ability to handle oil and gas vehicles in wet or dry conditions. Negative impacts to the soil resources are expected in the short-term. Long-term, cumulative, and/or irreversible impacts to the ecosystem are not expected.

Any topsoil and subsoil would be stripped and stockpiled for use in reclamation. Reclamation would require the slopes of the area be put back to a natural contour with erosion control techniques.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:
Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

Tiger Tim Creek flows west to east in the southern half of Section 16 and eventually runs into the Powder River. A dam was constructed on this creek in Section 15, creating a reservoir spanning across Sections 15 and 16. The proposed well pads and evaporation pond are approximately 0.4-0.7 miles north of Tiger Tim Creek. The project site is located on a terrace approximately 60 feet higher in elevation than the creek.

A search on the Montana Ground Water Information Center website found there is one well within two miles of the proposed project site. The existing well is a stockwater well located southeast of the project in Section 21. That well has a total depth of 275 feet, and static water level at 180 feet. No wells were show to be located down-gradient, between the proposed project and the Power River.

A temporary evaporation pond would be constructed to store water from dewatering of the existing Helios 5-52 16-22 well during the testing period. The proponent does not anticipate water production from the Helios 5-52 16-32. The proponent estimates an inflow rate of approximately 1,000 barrels per day, and TDS of this water to be 5,000-8,000 parts per million. The proponent expects water quality to be high; although, the DNRC could recommend lining the pit based on results of water analysis and an on-site inspection of soils underlying the pit. The evaporation pit would be temporary until the proponent could permit and utilize an injection well, after which the pit would be reclaimed. The formation in which the injection well would inject to will depend upon formations evaluated during the drilling of the production well.

6. AIR QUALITY:
What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

A short duration increase in airborne pollutants and particulates would occur from machinery exhaust and dust during proposed well pad construction and drilling activities. Minimal short-term impacts to air quality are expected. If commercial quantities of hydrocarbons are found, associated natural gas may likely be produced along with the oil. Depending on proximity of gas lines, natural gas flaring is allowed on a temporary basis as is permitted by the Board of Oil and Gas Conservation. The products of natural gas flaring are carbon dioxide and water.

7. VEGETATION COVER, QUANTITY AND QUALITY:
What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

Vegetation in Section 16 at the proposed project site including the access road, well pads, and evaporation pond are Great Plains Mixedgrass Prairie, Big Sagebrush Steppe and small areas of Great Plains Badlands. Native species on site include Western Wheatgrass (*Agropyron smithii*), Green Needlegrass (*Stipa viridula*), Needle and Thread (*Stipa comata*), Prairie Junegrass (*Koleria pyramidata*), Blue Grama (*Bouteloua gracilis*), Sandberg Bluegrass (*Poa secunda*), Big Sagebrush (*Artemisia tridentata*), Silver Sagebrush (*Artemisia cana*), and various forb species. Invasives species include Downy Brome (*Bromus tectorum*) and Japanese Brome (*Bromus japonicus*), Fringed Sagewort (*Artemisia frigida*), Broom Snakeweed (*Gutierrezia sarothrae*).

Vegetation on the proposed project site would be damaged during construction. Reclamation would re-establish native grasses, forbs and shrubs as stated in proponent's approval letter from the Montana Sage Grouse Habitat Conservation Program for this project.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:
Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

There may be minimal disruption to other wildlife in the area. The scale and length of the project should not be enough to permanently disrupt wildlife species. Species in the area include antelope, whitetail deer, mule deer, raptors and other birds, various rodents, rabbits, reptiles and others. The well pad located in SW¼NE¼ is in a prairie dog town. The proposed well pad site is approximately 1.1 acres, which is not large enough to have significant impacts to this species.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:
Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

A search was conducted using the Montana Natural Heritage Program database to identify point observations of species of concern in the section of the proposed activity. Species of concern documented in Section 16 in the last 10 years are Black-tailed Prairie Dog, Great Blue Heron, Greater Sage-Grouse. Land Use Specialist, Aaron Kneeland, completed a field visit to all three proposed pad

sites and evaporation pit on October 6, 2016 and noted Prairie Dogs mounds were present within an area less than 30 acres; however, the Montana Natural Heritage Program did not have any point observations for Black-tailed Prairie Dogs in Section 16.

Section 16 is in the Greater Sage-Grouse general habitat area, and there is a documented, confirmed active sage grouse lek in the section. The proponent has applied to and been approved for this project from the Montana Sage Grouse Habitat Conservation Program. The recommendations for this project are as follows:

1. New project noise level, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of an active lek from 6:00p.m. to 8:00a.m. during the breeding season (March 1 - July 15).

2. Reclamation should re-establish native grasses, forbs, and shrubs during interim and final reclamation. The goal of reclamation is to achieve cover, species composition, and life form diversity commensurate with the surrounding plant community or desired ecological condition to benefit sage grouse and replace or enhance sage grouse habitat to the degree that environmental conditions allow. Landowners should be consulted on the desired plant mix on private lands. Reclamation of disturbed areas must include control of noxious weeds and invasive plant species, including cheatgrass (*Bromus tectorum*) and Japanese brome (*Bromus japonicas*).

10. HISTORICAL AND ARCHAEOLOGICAL SITES:
Identify and determine effects to historical, archaeological or paleontological resources.

DNRC Archaeologist, Patrick Rennie was consulted regarding the nature of the proposed action and the potential to impact historical and archaeological resources. No cultural resources are located within the project area of potential effect.

Land Use Specialist, Aaron Kneeland, completed a field visit to all three proposed pad sites and evaporation pit on October 6, 2016 and found no cultural resources on this proposed project site.

11. AESTHETICS:
Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

Impacts to aesthetics are expected during the scope of this project. There will be increased noise and the drilling rig will be visible from Mizpah Road during the construction of the well pads and drilling of the wells. However, after those activities are completed, aesthetics would only be changed on a few acres of this section. Well pads would be in place and vehicles would be traveling to the site for regular maintenance and operation. Depending on the production of the proposed wells, there could be increased vehicle traffic for maintenance and operation of the wells.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:
Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

None.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:
List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

None.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:
Identify any health and safety risks posed by the project.

No human and health safety risks were identified as a result of the proposed project other than the typical occupational hazards that coincide with drilling operations.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:
Identify how the project would add to or alter these activities.

The proposed project is not expected to alter current or future industrial, commercial, and agricultural activities and production.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:
Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

The proposed project would not create, move, or eliminate jobs.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:
Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

No impact.

18. DEMAND FOR GOVERNMENT SERVICES:
Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services.

No impact.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:
List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

No known zoning or management plans exist for this area.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:
Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

No impact.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

No impact.

22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

No impact.

23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

No impact.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:
Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

The existing oil and gas lease provides approximately $960, and the existing grazing leases provide approximately $2,935 in annual revenue from Section 16, T5N-R52E that goes to Common Schools. If wells are drilled and oil is extracted from state land, the amount of royalties would benefit the trust for Common Schools.

EA Checklist Prepared By:	**Name:** Heidi Crum	**Date:** 10/7/16	
	Title: Mineral Resource Specialist		

V. FINDING

25. ALTERNATIVE SELECTED:

After reviewing the Environmental Assessment, I have selected the Action Alternative, to issue a new well permit. I believe this alternative can be implemented in a manner that is consistent with the long-term sustainable natural resource management of the area and, if successful, generate revenue for the common school trust.

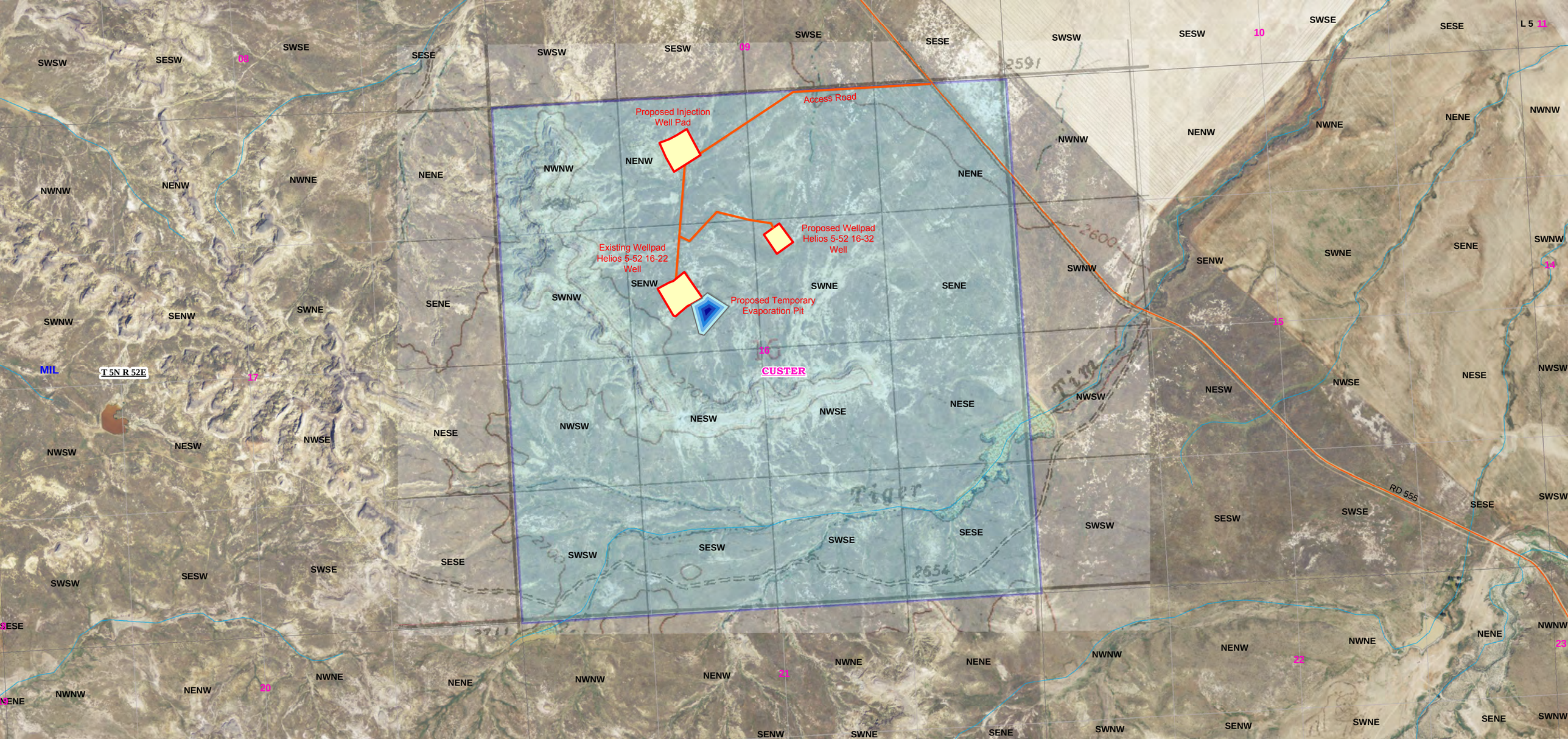
26. SIGNIFICANCE OF POTENTIAL IMPACTS:

I conclude all identified potential impacts will be mitigated by utilizing the stipulations listed below and no significant impacts will occur as a result of implementing the selected alternative.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

EA Checklist Approved By:	**Name:** Monte Mason **Title:** MMB Bureau Chief	
Signature: Mont S Mason		**Date:** 10/7/16



Proposed Injection Well Pad
Access Road
Proposed Wellpad Helios 5-52 16-32 Well
Existing Wellpad Helios 5-52 16-22 Well
Proposed Temporary Evaporation Pit
CUSTER
MIL
T 5N R 52E
RD 555
Tiger
Tim
L 5