

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Ken McQueen
Cabinet Secretary

Matthias Sayer
Deputy Cabinet Secretary

Heather Riley, Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-5 form.

Operator Signature Date: **Original APD 7/3/2012**
Sundry Extension Date 10/2/2016

WELL INFORMATION:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf_Owner	UL	Sec	Twp	N/S	Rng	W/E
30-039-31131-00-00	CLARK	014	SAN JUAN RESOURCES, INC.	O	N	Rio Arriba	F	J	5	24	N	3	W

Conditions of Approval:

(See the below checked and handwritten conditions)

- Notify Aztec OCD 24hrs prior to casing & cement.
- Hold C-104 for directional survey & "As Drilled" Plat
- Hold C-104 for NSL, NSP, DHC,
- Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- Submit Gas Capture Plan form prior to spudding or initiating recompletions operations.
- Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84

February 7, 2018

Page 2

- ✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ✓ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.
- ✓ Comply with current regulations at time of spud
Prior to production operator needs to be in compliance with RULE 19.15.5.9



NMOCD Approved by Signature

2/1/18

Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

OCT 06 2016

FORM APPROVED
OMB No 1004-0137
Expires January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1 Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5 Lease Serial No NMNM-003011
2 Name of Operator San Juan Resources Inc.		6 If Indian, Allottee or Tribe Name Farrington Field Office Bureau of Land Management
3a Address 1499 Blake Street, Ste. 10 C, Denver, Co. 80202	3b Phone No. (include area code) (303) 573-6333	7 If Unit of CA/Agreement, Name and/or No N/A
4 Location of Well (Footage, Sec., T., R., M., or Survey Description) 1819' FSL & 1939' FEL NWSE(J) 5-24N-3W NMPM		8 Well Name and No Clark #14
		9 API Well No 30-039-31131
		10 Field and Pool or Exploratory Area Lindrith Gallup-Dakota, West
		11 Country or Parish, State Rio Arriba, NM

12 CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13 Describe Proposed or Completed Operation. Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Please renew APD for an additional three years. Our development plan is as follows: Produce operated wells in vicinity which are located on the same lease; Upon improvement of market conditions drill and complete subject well. We anticipate this may take up to three years to accomplish.

NMOC
Rec'd
via email
12-12-17
AV

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations

* APD extension approved to 10/02/2018

14 I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Jerome P. McHugh Jr.		Title President
Signature 		Date 10/02/2016

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by AG Elmadori	Title PE	Date 10/20/16
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office FPO	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

~~OPERATOR~~ AV
NMOC

Conditions of Approval

Operator: San Juan Resources, Inc.
Well Name: Clark #14
Legal Location: 1819' FSL, 1939 FEL, Section 5, T 24 N, R 3 W
Bottom Hole:
NEPA Log Number: NM F010-2012-414
Inspection Date: 5/1/12
Lease Number: NMNM 003011

The following conditions of approval will apply to the San Juan Resources, Inc, Clark #14 well pad, access road and pipeline and other associated facilities, unless a particular Surface Managing Agency or private surface owner has supplied to Bureau of Land Management and the operator a contradictory environmental stipulation. The failure of the operator to comply with these requirements may result in the assessment of liquidated damages or penalties pursuant to 43 CFR 3163.1 or 3163.2.

Site Specific Stipulations

- 1. Copy of Plans:** A copy of these stipulations, including exhibits and the Plan(s) of Operation (if required), shall be at the project area and available to persons directing equipment operation.
- 2. Best Management Practices:** Farmington Field Office established environmental Best Management Practices (BMP's) will be followed during construction and reclamation of well site pads, access roads, pipeline ties, facility placement or any other surface disturbing activity associated with this project. Bureau wide standard BMP's are found in the Gold Book, Fourth Edition-Revised 2007. Farmington Field Office BMP's are integrated into the general and site specific stipulations described below.
- 3. Grazing Permittee Notification:** For any and all construction activities the holder will notify the grazing lease operator(s) at least ten business days prior to beginning construction to insure there will be no conflicts between construction activities and livestock grazing operations. The holder is in no way obligated to cease or delay construction unless directed by the authorized officer. Any range improvements (fences, pipelines, ponds, etc) disturbed by construction activities will be repaired immediately following construction and will be repaired to the condition they were in prior to disturbance.
- 4. Migratory Bird Survey:** Since the proposed project is greater than 4.0 acres of vegetative disturbance, construction activities from May 15 to July 31 will not be permitted without a migratory bird nest survey by a BLM/FFO approved biologist.
- 5. Visual Resource Management:** The San Juan Resources, Inc, Clark #14well pad is located in a VRM Class IV. Painting to blend (Federal 595a-34127, Juniper Green) with the natural background.
- 6. Vegetation Removal:** Sage, grass and brush will be mowed and then scraped up and incorporated into the topsoil pile.
- 7. Access:** The new access road will be constructed to Goldbook standards prior to interim reclamation. Construction techniques such as surfacing with sandstone, crowning, waterbar turnouts, culverts and water bar ditches will be utilized where appropriate and necessary and maintained when necessary to insure the integrity of the road.
- 8. Cultural Resources:** Cultural resources are not present within the immediate project area. See Cultural Resource Record of Review 2012 (II) 014F.
- 9. Equipment Placement:** Production, cathodic equipment, and meter runs associated with pipeline construction shall be placed on location near tear drop road as not to interfere with reclaiming the cut and fill slopes to their proper ratio. Gas metering equipment shall face to the interior of the well pad to provide easy access to equipment from the driving surface. If

equipment is found to interfere with the proper reclamation of the slope, the company will be required to move the equipment so proper re-contouring can occur.

10. **Painting of Equipment:** Within 90 days of installation, all above ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. A reflective material may be used to reduce hazards that may occur when such structures are near roads. Otherwise, the paint use shall be a non-glare, non-reflective, non-chalking color of: Federal 595a-34127 (Juniper Green)
11. **Emission Control Standard:** Compressor engines 300 horsepower or less used during well production must be rated by the manufacturer as emitting NOx at 2 grams per horsepower hour or less to comply with the New Mexico Environmental Department, Air Quality Bureau's guidance.
12. **Diversion:** Upon Reclamation
13. **Culverts:** Culvert(s) of sufficient size (minimum 24" to 36" inches) will be placed where needed along the access road,. Silt Traps will be built upstream of all culvert locations

General Conditions of Approval

The following general stipulations apply to the San Juan Resources, Inc. Clark #14 well including, but not restricted to the well pad, access road, pipeline.

cathodic protection line. Site specific stipulations for the access road and pipeline are presented after these general project stipulations.

1. **Pit Closure:** The operator or his contractor will contact the Bureau of Land Management, Farmington Field Office, Environmental Protection Staff, (505) 564-7600, 48 hours prior to any reclamation efforts associated with this project.
 - a. Reserve pits will be closed and rehabilitated 90 days after completion or 120 days from the well spud date. All reserve pits remaining open after the 90 days will need written authorization of the Authorized Officer from the Farmington Field Office. This requirement is addressed in the General Requirements in Onshore Order #7.
 - b. Liquids in pits will be allowed to evaporate, or be properly disposed of, before pits are filled and re-contoured. The AO will be notified 24 hours prior to fluid hauling. Under no circumstances will pits be cut and drained. Aeration of pit fluids must be confined within pit area. Upon completion of the well the reserve pit will be covered with screening or netting and remained covered until the pit is reclaimed.
 - c. Prior to closing the pit, any plastic material used to line the pits will be removed to mud level before the pits are covered. The excess liner will be hauled to a licensed disposal area. The final grade of reserve pit (after reclamation) shall allow for drainage away from pit area.
2. **Reclamation:** The operator or their contractor will contact the Bureau of Land Management, Farmington Field Office, Environmental Protection Staff, (505) 564-7600, 48 hours prior to any reclamation efforts associated with this project.
3. **Threatened, Endangered or Sensitive Species:** If, in operations the operator/holder discovers any T&E / Sensitive species, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to the BLM T&E specialist @ (505) 564-7600. BLM will then specify what action is to be taken. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Endangered Species Act (as amended).
4. **Nesting:** If a bird nest containing eggs or young is encountered in the path of construction the operator will cease construction and consult with BLM to determine appropriate actions.

5. **Noxious weeds:** The holder is responsible for weed control and selective control of invasive weeds on areas proposed to be disturbed, areas disturbed during construction or other activities, and reclaimed areas within the limits of the well pad, access road, pipeline right-of-way and other related facilities. Noxious weeds are those listed on the New Mexico Noxious Weed List. The following noxious weeds have been identified as occurring on lands within the boundaries of the Farmington Field Office (FFO).

Knapweed (*Centaurea repens*), Musk Thistle (*Carduus nutans*), Bull Thistle (*Cirsium vulgare*), Canada Thistle (*Cirsium arvense*), Scotch Thistle (*Onopordum acanthium*), Hoary Cress (*Cardaria draba*), Perennial Pepperweed (*Lepidium latifolium*), Halogeton (*Halogeton glomeratus*), Russian Spotted Knapweed (*Centaurea maculosa*), Dalmation Toadflax (*Linaria genistifolia*), Yellow Toadflax (*Linaria vulgaris*), Camelthorn (*Alhagi pseudalhagi*), African Rue (*Peganum harmala*), Saltcedar (*Tamarix* spp.), Diffuse Knapweed (*Centaurea diffusa*) and Leafy Spurge (*Euphorbia esula*)

- a. Areas within the proposed project will be inventoried for the presence of noxious weeds. Identified weeds will be treated prior to new surface disturbance.
- b. Construction equipment will be inspected and cleaned prior to coming onto the work site to remove noxious weed plants and seeds. This is especially important on vehicles from out of state or if coming from a weed infested area. If fill dirt or gravel will be required, the source shall to be noxious weed free.
- c. The well pad, access road, pipeline and related facilities will be monitored for the life of the project for the presence of noxious weeds (includes maintenance and construction activities). If weeds are found, the FFO Weed Coordinator will be notified at (505) 564-7600 and the coordinator will determine the best method for the control of the particular weed species.
6. **Pesticides and Herbicide Use:** Use of pesticides and herbicides will comply with applicable federal/state laws. Pesticides and herbicides will only be used in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. A written plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary will be approved by the Authorized Officer(AO) prior to the use of pesticides. Emergency use of pesticides shall be approved in writing by the AO prior to use.
7. **Air Quality:** All air pollutant emissions from federally conducted or approved activities shall comply with all applicable local, state, tribal, and federal air quality laws, statutes, regulations, standard and implementation plans.
8. **Weather:** No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of 6 inches deep, the soil shall be deemed too wet.
9. **Top Soil:** The top 6 inches of soil material will be stripped and stockpiled in the construction zones approved in the APD [construction zones may be restricted or deleted to provide resource avoidance]. The stockpiled soil will be free of brush and tree limbs, trunks and roots. The stockpiled soil material will be spread on the reclaimed portions of the pad [including the reserve pit, cut and fill slopes] prior to re-seeding. Spreading shall not be done when the ground or topsoil is frozen or wet.
10. **Storage Facility Berms:** Berms or firewalls will be constructed around all storage facilities sufficient in size to contain the storage capacity of tanks, or the combined capacity of tanks if a rupture could drain more than one tank. Berm walls will be compacted with appropriate equipment to assure proper construction.
11. **Unguarded Pit Fencing:** All unguarded pits (reserve/production/blow pits) containing liquids will be fenced with woven wire. Drilling pits will be fenced on three sides and once the rig leaves location, the fourth side will be fenced. All fencing must be a legal fence in accordance with New Mexico State Law.

- 12. Hazardous Waste:** All fluids (i.e. scrubber cleaners) used during washing of production equipment, including compressors, will be properly disposed of to avoid ground contamination or hazard to livestock or wildlife.
- Compressor units not equipped with a drip pan for containment of fluids shall be lined with an impervious material at least 8 mils thick and surrounded by a 12 inch berm.
 - All open top permanent production or storage tanks regardless of diameter made of fiberglass, steel, or other material used for the containment of oil, condensate, produced water and or other production waste shall be screened, netted or otherwise covered to protect migratory birds and other wildlife from access.
- 13. Seeding:** All disturbed areas, except for the access road driving surface and shoulders and well pad inside of the anchors, will be seeded.

Standard Seed Mix

Type	Variety or Cultivator	PLS/A
Western wheatgrass	Arriba	3.0
Indian ricegrass	Paloma or Rimrock	3.0
Slender wheatgrass	San Luis	2.0
Crested wheatgrass	Hy-crest	3.0
Bottlebrush Squirreltail	Unknown	2.0
Four-wing Saltbush	Delar	0.25

- Species shall be planted in pounds of pure live seed per acre: Present Pure Live Seed (PLS) = Purity X Germination/100. Two lots of seed can be compared on the basis of PLS as follows:

Source No. One (poor quality)	Source No. two (better quality)
Purity 50 percent	Purity 80 percent
Germination 40 percent	Germination 63 percent
Percent PLS 20 percent	Percent PLS 50 percent
5 lb. bulk seed required to make 1 lb. PLS	2 lb. bulk seed required to make 1 lb. PLS

- Seed mixtures used must be certified. There will be no primary or secondary noxious weeds in seed mixture. Seed labels from each bag will be available for inspection while seed is being sown.
- 14. Time Frame:** Disturbed areas will be re-contoured and re-seeded within 120 days of final construction. The timeframe may be extended on a case-by-case basis with AO approval. Seeding will be repeated if a satisfactory stand is not obtained as determined by the AO upon evaluation after the second growing season.
- 15. Seeding Techniques:** Before seeding compacted areas will be ripped to a depth of 12" and disked to a depth of six inches. A disk-type drill with two boxes for various seed sizes will be used. The drill rows will be eight to ten inches apart and seed planted one-half inch to one inch deep. A drag, packer or roller will follow the seeder to ensure uniform seed coverage and adequate compaction. Drilling will be done on the contour where possible, not up and down the slope. Where the slope is too steep for contour drilling a "cyclone" hand seeder or similar broadcast seeder will be used. Seed will be covered to the depth described above by whatever means is practical, i.e. hand raked. If the seed is not covered, the prescribed seed mixture amount (pounds/acre/PLS) will be doubled.
- 16. Authorized Use:** All activities associated within the construction, use/operation, maintenance, and abandonment or termination of San Juan Resources, Inc. Clark #14 is limited to areas approved in the APD. All roads on public land must be maintained in good passable condition year round.
- 17. Public Access:** Public access will not be restricted without specific written approval being granted by the AO. Gates or cattle-guards on the public land will not be locked or closed to public use unless specifically determined by the AO.

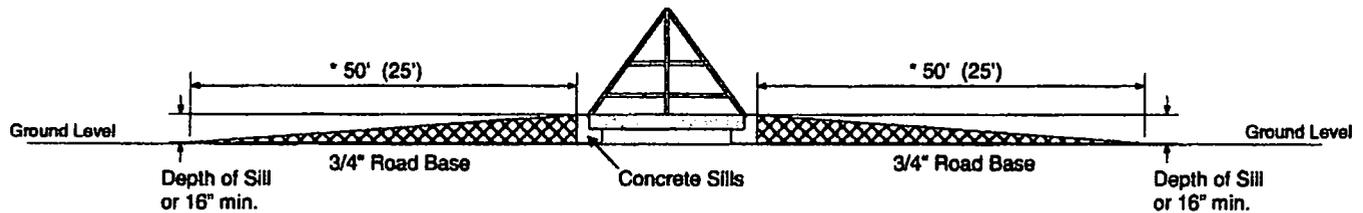
- 18. Land Farming:** There shall be no excavation, remediation or closure activities without prior approval on any federal or Indian mineral estate, federal surface or federal ROW. A Sundry Notice (DOI, BLM Form 3160-5) must be submitted with an explanation of the remediation or closure plan for on-lease actions.
- 19. Site Condition:** Well area and lease premises will be maintained in a workmanlike manner and sanitary condition with due regard to safety, conservation and appearance at all times. A regular maintenance program shall include.
- 20. Waste Disposal:** Waste materials produced during all phases of operation will be disposed of promptly in an approved manner so it will not impact the air, soil, water, vegetation or animals. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes and equipment. All liquid waste, completion fluids and drilling products associated with oil and gas operations will be contained and then buried in place, or removed and deposited in an approved disposal site. Portable toilets will remain on site throughout well pad construction, drilling and reclamation.
- 21. Fences and Existing Improvements:** Disturbance to existing fences and other improvements on public land will be minimized and will be promptly repair to at least their former state. Their functional use will be maintained at all times. The owner of any improvement will be contacted prior to disturbing them
- a. Each fence crossed by will be H-braced and secured on both sides to prevent slacking of the wire, before cutting the wire. The opening thus created will be temporarily closed as necessary during construction to prevent passage of livestock. Upon completion of construction, install a cattle guard with an adjacent 16 foot gate. The cattle guard shall be constructed to Bureau of Land Management specifications. Cattle guards will be kept clean and repaired or replaced when needed.
 - b. A minimum of 10 feet of undisturbed surface will be maintained between fence lines and roads that are constructed parallel to fences.
 - c. Gaps opened in natural barriers used for livestock control during construction will be fenced to prevent drift of livestock, as directed by the AO.
- 22. Cattle guards:** Cattle guards shall have grid identification marks welded into them indicating ownership, well name and number associated with the cattle guard, and foundation designs. Construction shall meet the American Association of State Highway and Transportation Officials (AASHTO) load rating H-20, although AASHTO U-80 rated grids shall be required where heavy loads, (exceeding H-20 loading) are anticipated. (See BLM standard drawings for cattle guards). Cattle- guard grid width shall not be less than eight feet and length of not less than 14 feet. A wire gate with a minimum width of 16 feet will be provided on one side of the cattle guard.

CATTLE GUARD INSTALLATIONS

New Installations (Mandatory)

Existing Reinstallations (BLM Recommendation)

- * 50' each side of installation for collector roads.
(25' each side of installation for lease roads.)



Note: Adjust drainage away from cattle guard as needed.

Materials estimate:

1. 3/4" ROAD BASE, 80 YARDS (COLLECTOR ROADS)
3/4" ROAD BASE, 40 YARDS (LEASE ROADS)
2. CEMENT SILLS (2)
3. BARBED WIRE, EACH WING TO FENCE LINE
4. CATTLE GUARD (20' Min. Collector roads, 14' Min. lease roads)

Cultural Resources

Construction, construction maintenance or any other activity outside the areas permitted by the APD will require additional approval and may require a new cultural survey and clearance.

1. **Employee Education:** All employees of the project will be informed cultural sites are to be avoided by all personnel, personal vehicles and company equipment. They will also be notified it is illegal to collect, damage or disturb cultural resources.
2. **Discovery of Cultural Resources in the Absence of Monitoring:** If, in its operations, operator/holder discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to Bureau of Land Management Field Manager. The Bureau of Land Management will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the Bureau Land Management will evaluate the significance of discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization, or data recovery may be performed by a Bureau of Land Management or permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed. Failure to notify the Bureau of Land Management about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).
3. **Discovery of Cultural Resources during Monitoring:** If monitoring confirms the presence of previously unidentified cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the Bureau of Land Management Field Manager. The Bureau of Land Management will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the Bureau of Land Management will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. A Bureau of Land Management or permitted cultural resources consultant may perform minor recordation, stabilization, or data recovery. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed.

4. **Damage to Sites:** If, in its operations, operator/holder damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the operator/holder agrees at his/her expense to have a permitted cultural resources consultant prepare and have executed a Bureau of Land Management approved data recovery plan. Damage to cultural resources may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

Access Road

1. **Mineral Materials:** No gravel or other related minerals from new or existing pits on federal land will be used in construction of roads, well sites, etc., without prior AO approval.
2. **Design:** Unless otherwise approved in writing by the AO the access road will be designed and constructed to conform to the Bureau of Land Management, New Mexico road construction/maintenance policy. A professional engineer shall design those segments of road where the grade is in excess of ten percent for more than 300 feet.
3. **Staking:** The holder shall place slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the authorized officer to ensure construction in accordance with the plan of development. If stakes are disturbed, they shall be replaced before proceeding with construction.
4. **Width:** Right-of-way clearing shall be limited to 15 feet on each side of centerline and a maximum driving surface of 16 feet. There will be a maximum bladed width of 30 feet excluding turnout ditches and turnouts, and a maximum grade of 10 percent.
5. **Crowning and Ditching:** Crowning and ditching on both sides of the road is required. The road cross section will conform to the cross section diagrams available from Bureau of Land Management. The crown shall have a grade of approximately two percent (i.e., two inch crown on a 16 foot wide road). "Flat blading" will only be permitted where bedrock is exposed at the surface
6. **Drainage and Culverts:** Drainage control shall be ensured over the entire road through the use of borrow ditches, drainage dips, out-sloping, in-sloping, natural rolling topography, and/or turnout (lead-off) ditches. Every drainage dip shall drain water into an adjacent turnout ditch. Culverts (18" minimum) will be placed across access road as necessary.
 - a. Unless otherwise approved in writing by the AO, drainage dip location for grades over two (2) percent shall be determined by the formula:

$$\text{Spacing Interval} = \frac{400 + 100'}{\%} = \text{road slope}$$

Example: For a road with a four (4) percent slope.

$$\text{Spacing Interval} = \frac{400 + 100'}{4\%} = 200 \text{ feet}$$

- b. Unless otherwise approved in writing by the AO, all turnout ditches shall be graded to drain water with a one (1) percent minimum to three (3) percent maximum ditch slope. The spacing interval for turnout ditches shall be determined according to the following table, but may be amended depending upon existing soil types and centerline road grade:

SPACING INTERVAL FOR TURNOUT DITCHES

Percent Slope	Spacing Interval
0 - 4%	150 - 350 feet
4 - 6%	125 - 250 feet
6 - 8%	100 - 200 feet
8 - 10%	75 - 150 feet

- c. Maintain the road so that user traffic remains within right-of-way and erosion is mitigated. Roads and road segments where serious erosion damage is occurring will be handled on a case-by-case basis.
- d. The holder shall construct low-water crossings in a manner that will prevent any blockage or restriction of the existing channel. Material removed shall be stockpiled for use in rehabilitation of the crossing.
- 7. **Surfacing:** Surfacing material may be applied at the Holder's discretion but is not required at this time. If it becomes evident there is resource damage or it becomes evident the road is receiving excess damage, surfacing will be required.
- 8. **Maintenance:** Roads will be maintained so that over time a proper road prism and good drainage is achieved. Maintenance will include drainage dips, turnout ditches, crowning and/or out-sloping/in-sloping, low water crossings and vehicle turnouts.
 - a. The Holder will furnish and apply water, chemicals, or use other means satisfactory to the Authorized Officer for dust. Failure to share maintenance costs in dollars, equipment, materials or man-power proportionate to the holder's use with other authorized users may be adequate grounds to terminate the lease. The determination as to whether this has occurred and the decision to terminate shall rest with the AO.
 - b. Upon request, the AO shall be provided with copies of any maintenance agreement entered into.

Pipeline

Construction of the pipeline or any other surface disturbing activity will not begin until the associated APD is approved. The holder will adhere to the general and pipeline specific stipulations in the APD Condition of Approval.

- 1. **Staking:** The holder shall mark the exterior boundaries of the right-of-way with stake and/or lath at 100 to 200 foot intervals. The intervals may be varied at the time of staking at the discretion of the AO. The tops of the stakes and/or laths will be painted and the laths flagged in a distinctive color as determined by the holder. The survey station numbers will be marked on the boundary stakes and/or laths at the entrance to and the exit from public land. The holder shall maintain all boundary stakes and/or laths in place until final cleanup and restoration is completed and approved by the AO. The stakes and/or laths will then be removed at the direction of the AO.
- 2. **Width:** Right-of-way clearing shall be limited to the access road plus 20 feet. Bury the pipeline in the existing well pad or twenty (20) feet from the edge of the traveled surface of the existing road.
- 3. **Side Cuts:** Side-hill cuts of more than three (3) feet are not permitted. Areas requiring cuts greater than this shall be terraced so none are greater than three (3) feet.
- 4. **Re-contouring:** All disturbed areas will be re-contoured to establish approximate original contours of right-of-way. This includes obliterating all earthwork by removing embankments, backfilling excavations, and grading to re-establish the approximate original contours of the land in the right-of-way.
- 5. **Berms:** Construct earthen berms at each end of the right-of-way where it is separated from the road. The berms will be a minimum of four (4) feet high with a one (1) foot cut at the base facing away from the right-of-way, i.e., towards the direction of potential traffic.

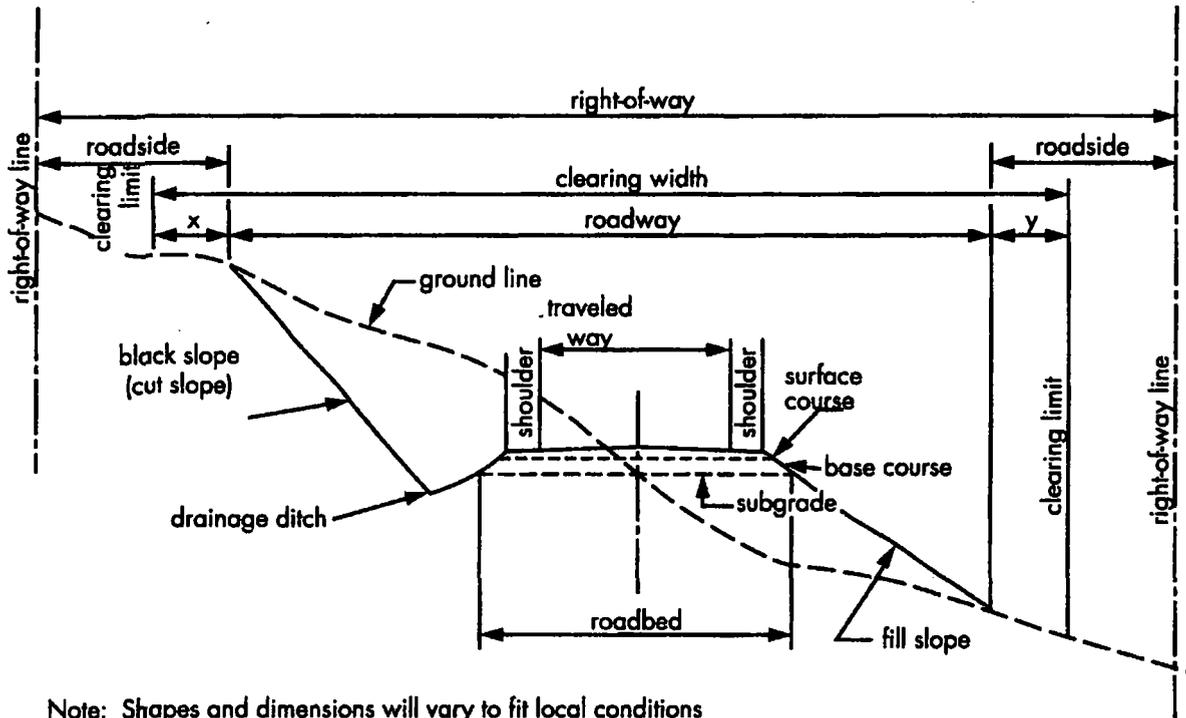
Abandonment

Ninety days prior to termination of the right-of-way the holder shall contact the AO to arrange a joint inspection of the ROW. This inspection will be held to agree to an acceptable termination

(and rehabilitation) plan. The plan will include, but is not limited to, removal of facilities, drainage structures, or surfacing material, re-contouring, top soiling or seeding. The AO must approve the plan in writing prior to the holder's commencement of any termination actions.

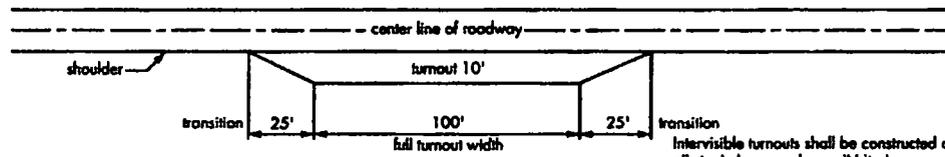
Final Reclamation and Abandonment

If, upon abandonment of wells, the retention of access road is not considered necessary for the management and multiple use of the natural resources, it will be ripped a minimum of 12" in depth. After ripping, water bars will be installed. All ripped surfaces are to be protected from vehicular travel by construction of a dead end ditch and earthen barricade at the entrance to these ripped areas. (Re-seeding of affected areas may be required).



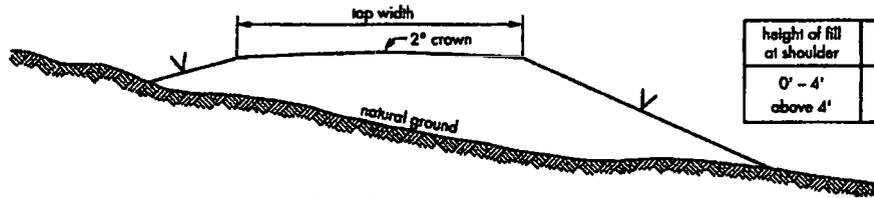
Note: Shapes and dimensions will vary to fit local conditions
 See drawings for typical sections
 x and y denote clearing outside of roadway

- Construction Steps**
1. Salvage topsoil
 2. Construct road
 3. Redistribute topsoil
 4. Revegetate slopes



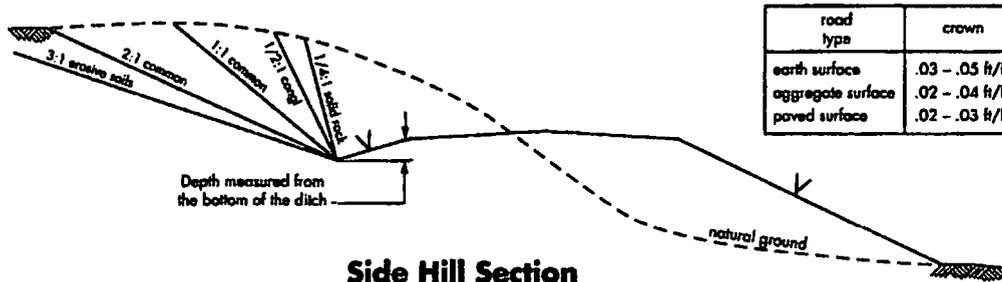
Intervisible turnouts shall be constructed on all single lane roads on all blind curves with additional turnouts as needed to keep spacing below 1000 feet.

Typical Turnout Plan



height of fill at shoulder	embankment slope
0' - 4'	3:1
above 4'	2:1

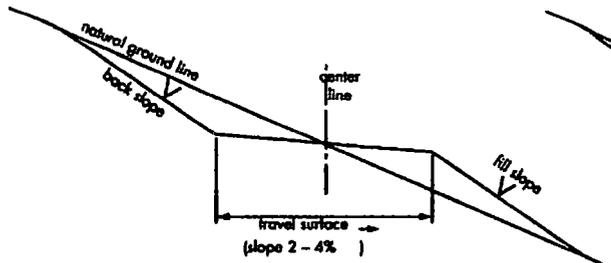
Embankment Section



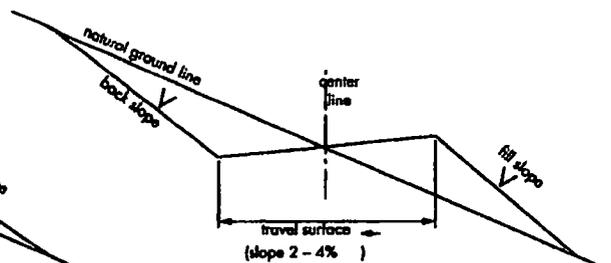
road type	crown
earth surface	.03 - .05 ft/ft
aggregate surface	.02 - .04 ft/ft
paved surface	.02 - .03 ft/ft

Depth measured from the bottom of the ditch

Side Hill Section

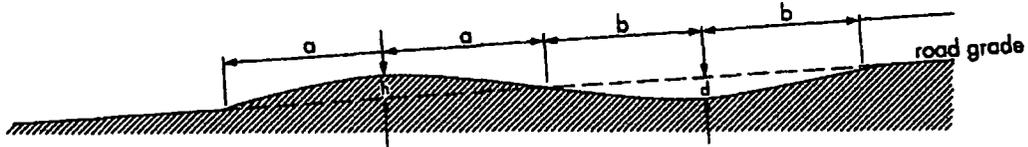
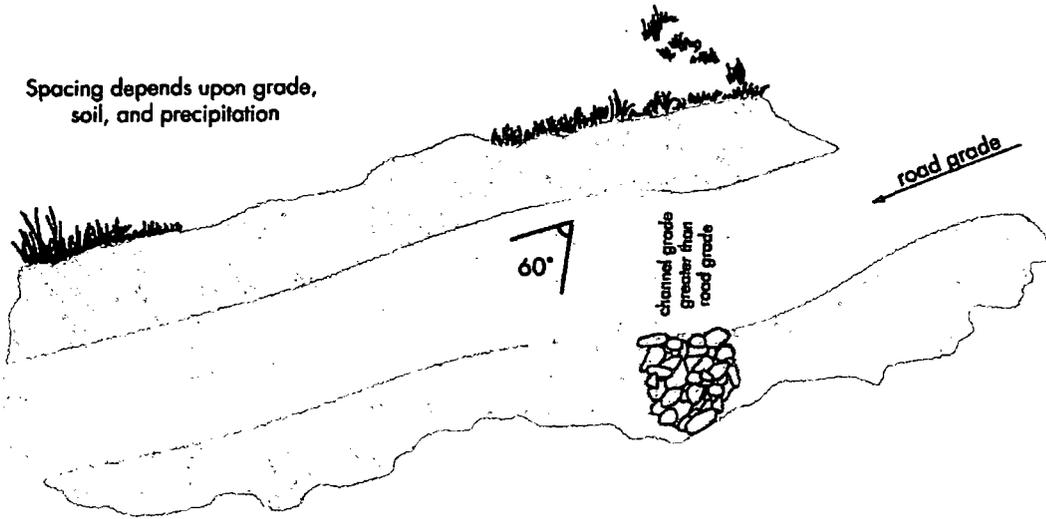


Typical Outsloped Section



Typical Insloped Section

Spacing depends upon grade, soil, and precipitation



Cross-Section of Waterdip on Center Line

Road Grade	d	h	a	b
2%	0.6'	0.4'	10'	10'
4%	1.0'	0.8'	14'	14'
6%	1.2'	1.4'	16'	18'
8%	2.0'	2.2'	22'	24'

Maximum Recommended Culvert Spacing (ft)

Soil Type	Road Grade	Road Grade	Road Grade
	2-4%	5-8%	9-12%
Highly erosive granitic or sandy	240	180	140
Intermediate erosive clay or loam	310	260	200
Low erosive shale or gravel	400	325	250