

<b>Well Name:</b>	Nageezi SWD #1, DJR Operating	
<b>Date:</b>	1/25/2021 Kathleen Murphy	Date submitted: 9/3/2019, Admin App
<b>Summary:</b>	New drill well in San Juan Basin, 6000 BWPD Max, psi= 1355 max, Entrada inj interval 6775-6970 ft, PW from Unit only	
<b>Fee Portal Submission</b>	<b>Initial Review of Application for Administrative Completeness</b>	<b>GIS or Technical Checklist</b>
<b>Review for Administrative Completeness</b>	<b>Initiate 15-Day Protest Suspension Period per 19.15.26.8(B) NMAC</b>	No protests
	All maps and figures (including well completion diagrams) as stipulated in Form C-108	Yes
	<b>PROOF OF NOTIFICATION:</b> return receipts / electronic delivery notifications and affidavit of publication (including potash operations when required; <b>Large-volume Devonian disposal applications increased to one-mile radius</b> )	BLM (2) and Dugan. SLO in unit but not within 1/2 mile AOR, not noticed. Navajo Allotments noticed thru BLM. Both mineral (lease) and surface owners. 1/2 mile notice, 6000 BWPD so low Vol. Newspaper Fmt Daily Times 8/13/2019.
	Affirmation statement by qualified person (knowledgeable of area and geology/hydrology)	Yes, Pt 4, p 5, signature, Geology Section
	Is the applicant an "operator" with an OGRID; type of operator (producer; commercial; midstream)	unit operator
<b>Review for Technical Content</b>	<b>Confirmation of Application Content [Prepare Administrative Application Completeness Checklist]</b>	
	Well name and location (legal and footages and <b>lat./long.</b> in decimal degree [NAD83]); location in County and relevant BLM 1:100,000 map	D, S34, 24N, 9W, 36.275001, 107.781969. APD= 1035 FNL, 998 FWL, API= 30-045-38204
	Date of well spud: USEPA classification pre- or post-approval date of NM primacy date of <u>March 7, 1982</u> (old vs. new).	new drill
	Status of well (new or re-entry; producing; TA) and ownership	new drill
	Existing administrative order or Division/Commission order related to well; pending activities in well file (C101/C-103)	N/A
	<b>Regional and AOR Geologic / Hydrologic Information [40 CFR 146.22 and 146.24]</b>	
	Discussion of geology and reservoir characteristics of the proposed injection interval	Yes, Part 4 of application, Entrada, Pool Code 96436
	Upper and lower confining zones (layers) for proposed injection interval	Yes, upper- Toldilto, Mancos SH, Lewis SH. Lower Chinle Fm. Ojo Alamo USDW at 615 to 780 feet, casing to 500 feet. SJ Basin has an accepted practice that the EPA approves of, provided there is a good record of cement job. COA- submit CBL to OCD.
	General hydrology of area along with identify of known/potential protectable waters (with upper and lower aquitards)	Ojo Alamo= USDW at 615 feet to 780, which is top of Kirtland. Surface casing set to 500 feet. NW only requires a certain depth of surface casing. Upper and lower aquitards: Toldilto and thick shales above (Lewis and Mancos) and below is Chinle Fm
	Significant areal structural features and faulting systems	Signature, but none in NW. Checked faults and seismic events on GIS
		GIS: checked faults and seismic activity-- none
<b>Assess for Proximity of Disposal Wells</b>	<b>Review of Penetrating Wells (Proposed, Producing and P&amp;A) in AOR [40 CFR 146.6, 146.7, and 146.24]</b>	
	<b>(Utilize Engineering GIS databases) Devonian Injection: review of adjacent SWDs and penetrating wells within one-mile radius under 40 CFR 146.24 and NMSA 70-2-12(B)(4); 1.5 mile between Devonian SWD wells.</b>	Entrada SWD in the San Juan Basin. No other SWDs in 1/4 mile, only a few HZ wells into Gallup, which is above the Entrada.

Map and summary list of, at a minimum, all penetrating wells [active and plugged] (with cement and casing data)	no wells w/in 1/2 mile that penetrate inj interval. No PA wells within 1/2 mile of prop well
Compare well diagrams and/or well data with well files in E-permitting/OCD Imaging	new drill, have APD submitted (rename well to SWD) and API
Identify any issues with AOR wells: historical casing or cementing problems; uncemented annulus sharing proposed injection interval; incomplete cement info; horizontals with cement issues; improper plugging	Review of adjacent o/g wells-- casing is set at 500 feet or less. These HZ wells oil are landed in the Gallup which is above the Entrada by a few hundred feet.
<b>Review of Well Construction Relative to Protected Aquifers, USDW, and Exempt Aquifers [19.15.26.8(E) NMAC; 40 CFR 146.7 and 146.22] (Utilize Engineering GIS databases)</b>	
Shallow and deep aquifers; Triassic potentials; basin-edge hydrology (San Juan); NMOSE Declared Basin	OSE Declared GW Basin: San Juan. Basin Edge hydrology- No
Ground water wells within one-mile radius of proposed well; OSE review; site visits by applicant	1 water well 4200 feet away and up 80 feet topographically. D= 528 feet, OSE, hydrologically seperated. Stock and Wildlife well, US Dept of Interior
Ground water samples (maximum two) from wells within one-mile radius	None
Well completion in relationship to USDW aquifers: examples from the SE: Goat Seep /Capitan Reef; Dockum; Rustler; Roswell Artesian (San Andres); examples from the NW: Kayenta/ Entrada/ Morrison; Entrada; Gallup; Ojo Alamo	Casing set to 500 feet, Top of Ojo Alamo is 615 to 780 (top of Kirtland)
<b>Review Seismic History, Fault Systems, and Known Karst Areas (Utilize Engineering GIS databases)</b>	
<b>Large-volume Devonian Disposal Wells (≥20,000 BWPD) requires induced seismicity risk assessment</b>	N/A. Max injection is 6000 BWPD, in San Juan Basin, so does not need a seismic review
<b>Prohibition on any injection below upper contact of Ordovician; Ellenberger Formation injection prohibited</b>	N/A.
Review of prior history of seismic events including USGS Earthquake Hazard and NMBGMR earthquake catalogs	Checked GIS: no seismic events or faults up in NW
Assessment of risk for induced-seismic event during projected disposal life [Stanford or equivalent risk model]	N/A
<b>Faults of Concern:</b> location, vertical extent and quality of seal for potential of fluid migration	Checked GIS: no seismic events or faults up in NW
Mapped high-risk karst area; reports of waterflows at depth in Salado and Delaware Mountain Group	N/A
<b>Review of Well Construction and Identifying Potential Issues [19.15.16 NMAC; 40 CFR 146.10, 146.22, and 146.23]</b>	
Casing and cement program (re-entry vs. new drill; EOR WAG operation); compare with recently approved wells; BLM Onshore No. 2; special casing requirements [if required]: Order R-111-P or BLM four-string area in east Capitan Reef	new drill. Injection from 6775 to 6970 ft, new perfs,
Drilling and casing program designed to address critical depths (fresh water vs. brine drilling; USDWs sealed; over-pressure zones isolated; H <sub>2</sub> S intervals)	surface casing to 500 ft, 9 5/8 casing; prod casing to 6970 ft using 2 stage DV tool, 2 stage cement, 7 in casing, new perfs
Tubing details (lined and size to compliment casing/operation); packer details (including 100-foot limit); well stimulation plan	3 1/2 tubing, packer at 6725 which is 50 feet abot uppermost perf (6775'), wont be stimulated unless injection test results indicate it needs to be, or will add new perfs. Internal coating, set at 6785 ft. packer set at 6725.
With re-entry wells: prior casing issues; accurate cementing information; plugging history; perforation history	N/A, new drill

	Potential plugging issues	N/A
	<b>Review of Operation and Sources for Disposal or Injection [19.15.26.8(E) NMAC; 40 CFR 146.22]</b>	
	Open or closed disposal system; commercial or operator/lease only	closed, will dispose of only Unit PW,
	Proposed rate of injection and administrative operating pressure (using administrative gradient of 0.2 psi/ft)	3000 BWPDP average, max = 6000 BWPDP, PSI ave =1000, max=1300 (1355) based on 0.2 and 6775 feet.
	Analytical results of formation waters proposed for disposal or use in EOR projects	PW samples form Unit wells: 2 wells in unit, 24K and 34 K TDS
	Compatibility with formation fluids (prevent degradation of reservoir permeability in EOR)	Fm Water- samples from 3 wells, TDS> 10,000.
	<b>Review for Restrictions Due to Land Use, Ownership, Or Other Activities Engineering GIS databases</b>	In Nageezi BLM Unit, adjacent Navajo Allotments (noticed thru BLM), BLM Leases
	Within Potash Area: any conflict with BLM Drilling Island Map or Order R-111-P (LOM determination and notice)	N/A
	Proximity to DOE activities: WIPP and legacy monitoring of Project Plowshare (Gasbuggy and Gnome)	N/A
	Proximity to active gas storage projects (Washington Ranch and Grama Ridge Projects) and Salado LP storage	N/A
	Split estate between surface/minerals; Tribal / trust lands within NM where USEPA or tribe retains primacy	Navajo Allotments within 1/2 mile, noticed thru BLM
	<b>Assessment of Hydrocarbon Potential for Proposed Interval (GIS databases)</b>	
	Closest producing intervals vertically and horizontally; two-mile radius map showing pools if located in same stratum	No wells are in the Entrada within a 2 mile radius. Several new HZ wells drilled since 2014. The Entrada is not a currently producing interval or formerly producing interval
	Any production within proposed injection interval; record of formation testing (DST; geophysical logs; swab test)	Nearest HZ wells are in the Gallup and Basin Mancos. There are not many wells in the area.
	Potential for injection to impact reserves/resources (injection out of approved interval)	Sealing formations above and below. Entrada is not an oil or gas production zone. Produces water
	Economic assessment of reservoir to demonstrate depleted or uneconomical status of proposed injection interval	Adjacent HZ oil wells are in Basin Mancos,older wells are in the Gallup. None are deeper.
	<b>Check for Compliance With 19.15.5.9 NMAC and Financial Assurance</b>	E-Permitting- Compliance: FA and Inactive well list
	<b>MUST BE CURRENT UPON DATE OF ORDER APPROVAL</b>	
	Blanket bond or individual bond in place; Federal bond verified when required	FA: none in violation ("Y)
	Status of inactive well count for operator	2 of total 36.
	Compliance issues or compliance orders with operator (e.g. ACOI; settlement agreements)	under ACO, thru 5/6/2023, in compliance, emailed DJS 1/26/2021
	Any pending issues with regards to business status or financial assurance (pending bankruptcy action)	
UIC Permit	<b>Compile Results of Review of Application and Make Recommendation to Director</b>	Signature: 2-2-2021
	Recommend approval to Director (with standard template and added conditions of approval inc.resolutions of protest). COAs (2)	<b>Approval</b> or Denial:
	PROTEST RECEIVED DURING SUSPENDED PERIOD - Negotiated resolution (return to admin review) OR to Hearing (protest not resolved)	No.