PENNAC® ENERGY

A Wholly Owned Subsidiary Of Marathon Oil Company

May 9, 2006

Jennifer Zygmunt, Environmental Analyst Department of Environmental Quality Water Quality Division 122 West 25th Street, Herschler Building, 4W Cheyenne, WY 82002

RE: Major Modification to WYPDES Permit WY0052361 - Middle Prong Federal

Dear Ms. Zygmunt:

The purpose of this letter is to request a major modification to WYPDES Permit WY0052361 for the addition of 15 outfalls with associated on-channel reservoirs. The requested major modification falls under the same classification as the existing permit, "Option 2 - Surface Discharge to Class 2 or 3 receiving stream of the Powder River or Little Powder Rivers (Class 2AB)".

Pennaco Energy, Inc. (PEI), a wholly owned subsidiary of Marathon Oil, would like to include outfalls 001 through 0012 and outfall 0020 to WYPDES permit WY0052361. Outfalls 001 through 0012 were reportedly withdrawn from the original permit application, since that application did not address downstream irrigation concerns on Middle Prong Wild Horse Creek. Outfall 0020 was approved in the original permit, however this outfall would also discharge to Middle Prong Wild Horse Creek. From the verbiage in the Statement of Basis, it appears that WDEQ did not intend Middle Prong Wild Horse Creek outfalls to be included in the original permit document, and we would like to ensure outfall 0020 is correctly added to the permit through this modification.

In addition, PEI would like to include two other outfalls: outfall 0026 (to North Prong Wild Horse Creek) and outfall 0027 (to North Windmill Draw), associated with two proposed onchannel reservoirs (Whale and Hunting, respectively).

PEI has also included corrections to the coal bed methane (CBM) well list for Middle Prong POD. The corrected well list includes a total of 40 contributing CBM wells, a reduction of 5 from the original permit. Three new wells have been added, but they would be producing from the same coal seams as are currently in the permit. Compliance data and updated water quality from existing outfalls is not available, as existing permitted outfalls have not yet been utilized for discharge of produced water. Permitted flow in the original permit is listed as 1.87 MGD.

The following documents are enclosed to support the above requested WYPDES permit modification:

EXHIBIT D

- WYPDES Coalbed Methane Permit Application Short Form C
- Table 1. Outfall Information
- Table 2. Well Information
- Table 3. Combined Water Balance (Middle Prong)
- Attachment A. Representative Water Quality, and
- Figure 1. Middle Prong Federal Map Major Modification WY0052361

PEI would also like to request an update of the radium limits for this permit.

If you have any questions or require additional information, please contact Marge Bedessem or Craig Smith of Trihydro Corporation at (307) 745-7474, or via email: mbedessem@trihydro.com or mbedessem@trihydro.com or mbedessem@trihydro.com or mbedessem@trihydro.com or mbedessem@trihydro.com or mailto:mbedessem@trihydro.com or mailto:mbedessem@trihydro.com or mailto:mbeds

Sincerely,

Pablo Velasquez
Operations Manager

Enclosures

cc: WDEQ (2)

Marge Bedessem (Trihydro Corporation)

SUBMIT IN TRIPLICATE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM APPLICATION FOR PERMIT TO SURFACE DISCHARGE PRODUCED WATER

DΙ	TF A	CF	PRINT	Ω D	TVDF
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FROM COAL BED METH	ANE NEW DISCHARGES, MODIFICATIONS	RENEWALS, OR	MAJOR	WY00 Date Received:
	Revised 12-19-03		į.	
PLEASE PRINT OR TYPI				(mo/day/yr)
1. Check the box correspon	ling to the type of applicat	ion being applied	for	
☐ New CBM permit				
☐ CBM permit renewa	Permit	number		· · · · · · · · · · · · · · · · · · ·
☐ CBM permit major r	odification Permit	number	VY0052361	
2. Select a permit option				
	e containment to an off-cha surface waters of the state			c(s) (class 4C), no
	e containment to a natural caters of the state outside the		ya lake (class 3	A), no discharge
Option 2 - surface di River drainage (class	scharge to class 2 or 3 received 2ABWW).	iving stream of th	Belle Fourche	River or Cheyenne
Option 2 - surface di Rivers (class 2ABW	scharge to class 2 or 3 receive.	iving stream of th	e Powder River	or Little Powder
Woman Creek (class	scharge to class 2 or 3 rece 2AB)— this option requires rge point is equal to or bett	the permittee to	lemonstrate tha	t quality of the
3. Name, mailing address, e which owns the facility p		telephone number	of the individu	al or company
Name:	Pennaco Energy, Inc.			
Street Address:	3601 Southern Drive			
City, State, and Zip Code:	Gillette, WY 82718			
Attention:	Pablo Velasquez			
Telephone Number:	(307) 685-5100			

E-Mail Address:

pvelasquez@marathoil.com

For Agency Use Only

Application Number

4. Name(s) and mailing address(es) of owner(s) of the surface rights on whose land the discharge occurs (in cases where the land is owned by the state or federal government but surface rights are leased to a private individual, provide lessee's name and address).

Please see attached list of land owners.

5. Name of the facility producing the discharge (this is the facility name that will appear on the NPDES permit. It is not necessary to name every well contributing to this facility's discharge in this section)

Middle Prong Federal

- 6. For Option 1A or 1B permit, attach a water balance that demonstrates, considering total maximum projected discharge inflows, natural precipitation, evaporation and infiltration, that the containment unit will be adequately sized to contain all projected discharge and stormwater runoff from a 100 year, 24 hour storm event. If actual flow rates are available, use the maximum flow rate from all active wells within the previous six months of operation in the water balance. Not applicable.
- 7. For an Option 2 permit utilizing on-channel reservoirs, attach a water balance and mixing analysis documenting the amount of CBM discharge that, under normal operating conditions, can be contained within the reservoirs, the amount and circumstances under which the reservoirs will discharge, and the expected water quality upon discharge from the reservoirs.

See attached water balance.

- **8.** Attach a description and a clear, legible, detailed topographic map of the discharging facility. Include the following:
 - a. A legend
 - **b.** Well locations
 - c. Ponds
 - d. Reservoirs
 - e. Stock tanks
 - f. Discharge points (outfalls)
 - g. Immediate receiving streams
 - h. Water quality monitoring stations
 - i. Irrigation compliance points
 - j. Location of nearest downstream irrigator.
 - k. Section, Township, and Range information

If any of the above are not applicable please indicate in the description and include a brief explanation as to why the item is not applicable)

See attached map.

9. Describe the control measures that will be implemented to prevent significant damage to or erosion of the receiving water channel at the point of discharge.

Pennaco Energy will install erosion controls such as rip-rap and/or geotextile membrane. Aeration facilities to reduce dissolved iron in the produced water will be installed at the discharge point prior to the receiving waters of the state.

10. Describe the control measures that will be implemented to achieve water quality standards and effluent limits. If proposing to utilize a treatment process, provide a detailed description of the treatment process, including, but not limited to: Water quality analyses demonstrating the effluent quality before and after

treatment; waste stream volumes and planned method of disposal; aquatic life toxicity data for any chemicals being used in the treatment process; description of how the chemicals will be handled at the facility and the potential for any impacts to waters of the state in the event of a spill; and diagrams of the facility indicating the water treatment path. Additional sheets and diagrams may be attached.

Pennaco does not expect violations of Water Quality Standards based on samples collected previously. However, to act in good faith to minimize potential downstream impacts, Pennaco will direct any discharge onto a rip-rap surface underlain by an impermeable geotextile. This will provide additional aeration to aid in the precipitation and trapping of iron and other salts from the produced CBM water. New outfall construction practices are being utilized to maximize aeration and precipitation of iron and radium. Lined treatment paths are being extended to remove iron precipitates.

11. Outfall locations must be established as part of a preliminary field reconnaissance survey using GPS or conventional survey equipment and documented in Table 1. Please document the type of equipment used, the expected accuracy of your measurements, and a brief rationale for locating the outfalls at the requested sites below.

The proposed outfall locations are based on field surveyed reservoir locations. The reservoir

locations have been surveyed using GPS and/or conventional survey equipment.

12. Complete the attached Table 1. Provide all the information in the table for each proposed discharge point or monitoring point. If proposing changes (a major modification) to an existing facility, clearly indicate the desired changes on the table. Additional tables may be attached. Use the format provided.

See attached Table 1.

13. Complete the attached **Table 2**. Provide all the information in the table for each well associated with this proposed discharge authorization. If proposing changes (a major modification) to an existing facility, **clearly** indicate the desired changes on the table. Additional tables may be attached. Use the format provided.

See attached Table 2.

14. Provide the results of water analyses for a sample collected from a location representative of the quality of the water being proposed for discharge for the 25 chemical parameters listed below. The sample must be collected from well(s) or outfall(s) within a twenty mile radius of the proposed facility's location, and from the same coal formation(s) and the same approximate depth(s) as proposed in this application. If filing an application for a permit renewal or modification, the representative sample must be collected from the facility being proposed for renewal or modification. Explain why this sample is representative of the produced water to be discharged.

Samples from co-mingled coal seams are acceptable as long as the sample(s) meet the following criteria:

- A. all of the coal seams being proposed for development are represented in the co-mingled sample,
- B. the ratio of each coal seam's contribution is approximately the same in the sample and the proposed development,
- C. documentation is provided to verify the criteria listed in A. and B.

See attached lab analyses from the original permit application. Updated water quality from the permitted outfalls is not yet available since none of the outfalls have begun to discharge produced water. Sample ID DP_WY0039047_002_TP was collected from a permit located approximately 6 miles to the south and is considered representative of the Anderson/Canyon/Wall coal seams. Sample ID PW_005_35909_51_74_S was collected from a well located approximately 12 miles to the southeast and is considered representative of the Smith coal seam. In addition, we have provided lab analyses from permitted WYPDES Outfall WY0043095-001 (Sample ID DP_WY0043095_001-ET30). This supplementary water quality data is from an outfall which receives produced water from the Anderson/Canyon coal seams, is located approximately 3.5 miles southwest and can be considered representative of produced water from the adjacent Middle Prong POD.

The analyses must be conducted in accordance with approved EPA test procedures (40 CFR Part 136). Include a signed copy of your lab report that includes the following:

- a. detection limits
- b. results of each of the 25 chemical parameters at the chemical state given below
- c. quarter/quarter, section, township and range of the sample collection location
- d. Time and date of sample collection
- e. Time and date of analysis for each parameter
- f. Analyst's initials for each parameter
- g. Detection limit for each parameter as achieved by the laboratory
- h. NPDES permit number and outfall number, where the sample was collected.
- i. Origin of produced water (coal seam)

If more than one coal seam is being proposed for development, the permittee must submit a lab analysis and complete information characterizing water quality from each coal seam being proposed for development. If the permittee is proposing to include discharges from a coal seam not previously developed at this facility, the permittee must submit a lab analysis and complete information characterizing water quality from the new coal seam being proposed for development. Analyses must be provided in the units listed below.

Parameter* (See notes following the table on chemical states)	Required Detection Limits and Required Units
Alkalinity, Total	1 mg/l as CaCO ₃
Aluminum, Total Recoverable	50 μg/l
Arsenic, Total	1 μg/l
Barium, Total	100 μg/l
Bicarbonate	10 mg/l
Cadmium, Dissolved	5 μg/l
Calcium, Total	50 μg/l, report as meq/l
Calcium, Total	50 μg/l, report as mg/l
Chlorides	5 mg/l
Chlorides	5 mg/l
Copper, Dissolved	10 μg/l
Dissolved Solids, Total	5 mg/l
Hardness, Total	10 mg/l as CaCO ₃
Iron, Dissolved	50 μg/l
Lead, Dissolved	2 μg/l

Parameter* (See notes following the table on chemical states)	Required Detection Limits and Required Units
Magnesium, Total	100 μg/l, report as meq/l
Magnesium, Total	100 μg/l, report as mg/l
Manganese, Dissolved	50 μg/l
Mercury, Dissolved	1 μg/l
pH	to 0.1 pH unit
Radium 226, Total	0.2 pCi/l
Selenium, Total Recoverable	5 μg/l
Sodium Adsorption Ratio	Calculated as unadjusted ratio
Sodium, Total	100 μg/l, report as meq/l
Sodium, Total	100 μg/l, report as mg/l
Specific Conductance	5 micromhos/cm
Sulfates	10 mg/l
Zinc, Dissolved	50 μg/l

^{*}Discharges into drainages other than the Powder River geologic basin may require analysis of additional parameters, please contact the WDEQ for a separate list.

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provide the	rationale behind the flow volume estimate. For existing facilities, provide actual flow data ells within the last six months.
	e approach was taken to calculate the well flow rate utilizing the predicted production al seams, well turn on rates, and production decline curves. Please see attached Table nation.
	tions for new facilities, are any of the required chemical constituents in the laboratory esent in concentrations above Wyoming Water Quality Standards?
☐ YI	S NO
original permi mainstem, this radium.	226 in the representative Smith coal seam sample was listed as an exceedance in the tapplication. However, since the outfalls are all greater than 15 miles from the value is in compliance with the applicable Class III Water Quality Standards for er to question # 16 is yes, answer 16.a. – 16.b below. If no, proceed to question 18.
a.	Which constituents?
b.	Has this constituent been addressed in the response to question 10?
17. For applica standards?	tions for existing facilities, has the facility ever exceeded permit limits or water quality NA
	YES NO

a.	Which constituer	its?	
b.	Has the exceedar	ice been addressed?	
c.	Describe how the	exceedance is being addressed.	
18. Is there	e active irrigation,	(including but not limited to irrigation of c	ultivars or flood irrigation) in the
	ge of the discharge		
-	YES	□ NO	

If the answer to question 17 is yes, answer 17.a. -17.b. If no, proceed to question 18.

If the answer to question #18 is yes, then documentation demonstrating one of the following must be provided:

- A. Effluent will meet SAR and specific conductance (EC) values that are equal or of better quality to ambient values in the mainstem or highest quality receiving stream; or
- **B.** Demonstrate that a higher level of EC and SAR at the point of irrigation diversion can be tolerated by irrigated soils and crops without a significant reduction in crop yield and soil quality/permeability.

This information should include, but is not limited to the following:

- a. Location and description of irrigated crop land between the discharge points and mainstem, including maximum local tolerance thresholds to SAR, EC, and sodium of each crop.
- b. Description of irrigation practices including when and how frequent irrigation occurs.
- c. Soil characteristics for each area where irrigation occurs which includes: Classification of soils and soil type (i.e. sandy loam, clay, etc.) Composition of soils (% clay, silt, sand), type of soils, texture and permeability
- **d.** Baseline soil parameters in all actively irrigated areas which includes soil SAR, EC, Na, Mg, Ca, permeability, and exchangeable sodium percentage (ESP).
- e. Determine the maximum SAR and EC of water that can be applied to the least tolerant and most sensitive identified irrigated soil type and crop, which would not result in a short and/or long-term reduction in soil infiltration/permeability or yield.
- f. Provide the location (township, range, section, quarter quarter and lat/long coordinates) of point(s) upstream from the first downstream point of irrigation diversion/use between the outfalls and mainstem and/or provide the location(s) of the irrigation diversion/use that requires the least flow to operate.
- **g.** An evaluation that demonstrates the proposed discharge will be in compliance with Section 20, Chapter 1 of the Wyoming Water Quality Rules and Regulations.
- **h.** If necessary to protect irrigated crops and/or soils, describe changes that must be made in traditional irrigation practices to protect downstream irrigation activities.
- i. A monitoring plan, if necessary to gauge changes in water/soil quality and make adjustments before substantial reduction in crop production and soil permeability would occur.
- j. Citations of reference for all the above information must be provided.

Produced water quality is expected to comply with EC (6,100 micromhos/cm) and SAR (24) end-of-pipe limits proposed in draft permit WY0054585 as protective of the Spellman irrigated fields. These values are based on WDEQ evaluation of data presented in "Section 20 Compliance Analysis for Discharges by the Williams Cedar Draw Project to the Middle Prong Wild Horse Creek Drainage, Campbell County, Wyoming" by KC Harvey, LLC, dated February 27, 2006, hereby incorporated by reference.

19. Name(s) and address(es) of all downstream irrigators between the outfalls and the mainstern must be provided.
Name: Spellman, Bobby Jo and Rebecca Jo
Street Address: PO Box 50
City, State, and Zîp Code: Arvada, WY 82831
Telephone Number: (307) 736-2475
20. Section 40 CFR Part 435 Subpart E requires that the permittee document agricultural and wildlife uses of produced water. Provide documentation that the produced water will be used for agriculture or wildlife during periods of discharge. Agriculture and wildlife use includes irrigation, livestock watering, wildlife watering and other agricultural uses. Agricultural and wildlife use documentation includes (but is not limited to) a certified letter from a landowner(s), a formal written statement from a state, federal or local resource management agency, or a formal written statement with supporting documentation from a natural resources or environmental professional accompanied by the credentials of the natural resources or environmental professional. Agriculture and wildlife use documentation must be provided for each outfall included in the application. Agricultural and wildlife certification must be submitted for each outfall's discharge, and must have original signatures.
An Agriculture/Wildlife Use Statement is no longer required per Chapter 2, Appendix H(a)(i), Wyoming Water Quality Rules and Regulations.
I (CEO or other authorized person) certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief, such information is true, complete, and accurate. I am requesting27 outfalls in this application.
Pablo Velasque Operations Manager Printed Name of Person signing* Title* Signature *All permit applications must be signed in accordance with 40 CFR Part 122.22, "for" or "by" signatures are not acceptable.
Section 35-11-901 of Wyoming Statutes provides that: Any person who knowingly makes any false statement, representation, or certification in any application shall upon conviction be fined not more than \$10,000 or imprisoned for not more than one year, or both.
Mail this application to:
NPDES Permits Section Department of Environmental Quality/WQD 122 West 25th Street, Herschler Building, 4W Cheyenne, WY 82002

Land Owners

Dube, Peter 8885 US Highway 16 W Buffalo, WY 82834 (307) 684-2528

Odegard, Duane D. 6090 Hwy 14-16 Arvada, WY 82831 (307) 736-2245

Odegard, Michael D. 60908 N. US Highway 14-16 Arvada, WY 82831 307-736-2243

Spellman, Bobby Jo and Rebecca Jo PO Box 50 Arvada, WY 82831 (307) 736-2475

TABLE 1. OUTFALL INFORMATION MAJOR MODIFICATION TO WYPDES PERMIT WY0052361 MIDDLE PRONG FEDERAL, PENNACO ENERGY, INC., APRIL 2006

Modification	Discharge Point # (Outfall)	Immediate Receiving Stream	Mainstem	Distance from Outfall to Mainstem (stream miles)	Quarter / Quarter	Section	Township	Range	Latitude	Longitude	County	Reservoir Permit Application Submitted to SEO?	SEO Reservoir Permit#	Reservoir Name	SEO Reservoir Requirements
Yes	001	UET to Middle Prong WHC	Powder River	16.047963	SWSE	14	54	76	44.65203953	-105.9654164	Campbell	Yes	16418	New Pasture	Siphon to be installed
Yes	002	UET to Middle Prong WHC	Powder River	23.151358	SWNE	20	54	75	44.64644512	-105.9054378	Campbell	Yes	16416	Mesa #1	NA
Yes	003	UET to Middle Prong WHC	Powder River	22.246215	NWSW	20	54	75	44.64436	-105.9174098	Campbell	Yes	16417	Mesa Top	NA
Yes	004	UET to Middle Prong WHC	Powder River	17.330679	SESE	24	54	76	44.63754203	-105.9431998	Campbell	Yes	15957	County Rd. #2	NA
Yes	005	UET to Middle Prong WHC	Powder River	17.032422	NENE	25	54	76	44.6336603	-105.9444859	Campbell	Yes	16414	County Rd. #1	Siphon to be installed
Yes	006	UET to Middle Prong WHC	Powder River	22.196688	NWNW	28	54	75	44.63578737	-105.8972913	Campbell	Yes	16415	Horse Pasture	NA
Yes	007	UET to Middle Prong WHC	Powder River	22.249413	NWNW	28	54	75	44.63594832	-105,8962851	Campbell	Yes	12386	Windmill 1	NA
Yes	008	UET to Middle Prong WHC	Powder River	21.8039	NESE	29	54	75	44.62974928	-105.9026695	Campbell	Yes	15954	Cactus Patch	NA
Yes	009	UET to Middle Prong WHC	Powder River	22.282172	NENE	29	54	75	44.63681892	-105.9000557	Campbell	Yes	15958	Little BLM	NA
Yes	010	UET to Middle Prong WHC	Powder River	19.598175	SESE	30	54	75	44.62516293	-105,920095	Campbell	Yes	15955	Stud Pasture	Siphon to be installed
Yes	011	UET to Middle Prong WHC	Powder River	21.137892	NENE	32	54	75	44.62058941	-105,9009268	Campbell	Yes	15956	Calf Pasture	Siphon to be installed
Yes	012	UET to Middle Prong WHC	Powder River	20.763746	NESE	32	54	75	44.61283385	-105.9014748	Campbell	Yes	17113	Oasis	NA

Pennaco Energy, Inc. May 9, 2006 WYPDES Major Modification Application Permit # WY0052361

Modification	Discharge Point # (Outfall)	lmmediate Receiving Stream	Mainstem	Distance from Outfall to Mainstem (stream miles)	Quarter / Quarter	Section	Township	Range	Latitude	Longitude	County	Reservoir Permit Application Submitted to SEO?	SEO Reservoir Permit#	Reservoir Name	SEO Reservoir Requirements
No	013	UET to N. Prong WHC	Powder River	17.762301	NESW	7	54	75	44.67027693	-105.9331337	Campbell	Yes	15423	Baby	Siphon to be installed
No	014	UET to N. Prong WHC	Powder River	16.895537	NWSE	7.	54	75	44.67170669	-105.9289177	Çampbell	Yes	16706	Seven	NA
No	015	UET to N. Prong WHC	Powder River	18.566518	NESW	. 8	54	75	44.6729038	-105.9099373	Campbell	Yes	16844	Medley	NA
No	016	UET to N. Prong WHC	Powder River	17.992391	SWSE	8	54	75	44.66674041	-105.9072548	Campbell	Yes	16822	South Pine	NA
No	017	UET to N. Prong WHC	Powder River	15.811704	NWSE	13	54	76	44.65763823	-105.9483309	Campbell	Yes	3313	Mizer	NA
No	018	UET to N. Prong WHC	Powder River	18.310615	SWNE	17	54	75	44.66027161	-105.90448	Campbell	Yes	16223	Mesa #2	NA
No	019	UET to N. Prong WHC	Powder River	18.034196	NWSE	17	54	75	44.65918402	-105.9076667	Campbell	Yes	16332	Mesa #3	NA
Yes	020	UET to Middle Prong WHC	Powder River	22,935386	NWSE	28	54	75	44.62898364	-105.8866349	Campbell	est. 5/15/2006	NA	R11	AN
No	021	UET to N. Prong WHC	Powder River	17.802782	SENW	17	54	75	44.65965263	-105.9121265	Campbell	Yes	16845	Old Wagon	Siphon to be installed
No	022	UET to N. Prong WHC	Powder River	17.169533	NWNE	. 18	54	75	44.66545927	-105.9255508	Campbell	Yes	15806	Broken Jaw	Siphon to be installed
No	023	UET to N. Prong WHC	Powder River	16.988194	SWSE	18	54	75	44.65260103	-105.925876	Campbell	Yes	15867	Early Summer	Siphon to be installed
No	024	UET to N. Prong WHC	Powder River	16.569044	SESW	18	54	75	44.65397951	-105.9323804	Campbell	Yes	16705	Red Hill Crossing	Siphon to be installed
No	025	UET to N. Prong WHC	Powder River	16.569044	NESW	18	54	75	44.65679713	-105.9301931	Campbell	Yes	16704	Pine Cut	Siphon to be installed

Modification	Discharge Point # (Outfall)	immediate Receiving Stream	Mainstem	Distance from Outfall to Mainstem (stream miles)	Quarter / Quarter	Section	Township	Range	Latitude	Longitude	County	Reservoir Permit Application Submitted to SEO?	SEO Reservoir Permit#	Reservoir Name	SEO Reservoir Requirements
Add	026	UET to N. Prong WHC	Powder River	19.038446	NWSE	18	54	75	44.653728	-105.921764	Campbell	Yes	12387	Whale	NA
Add	027	UET to N. Windmill Draw	Powder River	24.849431	SWSE	28	54	75	44.630883	-105.894236	Campbell	Yes	17501	Hunting	NA
Water Quality Mo	onitoring Statio	ns								L	<u> </u>				I
No	DPR	Powder River	Powder River		NWSE	34	55	77	44.69714	-106.11194	Johnson	NA	NA ·	NA	NA
No	TRIB-1	Wild Horse Creek	Powder River	-	SESE	16	54	77	44.65046	-106.12157	Johnson	NA	NA	NA	NA
No	UPR	Powder River	Powder River	-	SWSE	16	54	77	44.64997	-106.12785	Johnson	NA	NA	NA	NA
Irrigation Monitor	ring Points														
Add	IMP-1	UET to Middle Prong WHC	Powder River	-	NENE	31	54	75	44.621542	-105.922611	Campbell	NA	NA	NA	NA
Add	IMP-2	UET to Middle Prong WHC	Powder River	-	SWNW	32	54	75	44.619022	-105.919319	Campbell	NA	NA	NA	NA
Add	IMP-3	N. Windmill Draw	Powder River		NESE	32	54	.75	44.614564	-105.908725	Campbell	NA	NA	NA	NA
Add	IMP-4	UET to Middle Prong WHC	Powder River	-	SESE	32	54	75	44.612153	-105.902189	Campbell	NA	NA	NA	NA

Notes:

UET - Unnamed Ephemeral Tributary

WHC - Wild Horse Creek

MP - Irrigation Monitoring Point
TRIB - Tributary Water Quality Monitoring Station
UPR- Upstream Water Quality Monitoring Station
DPR- Downstream Water Quality Monitoring Station
NA - Not Applicable

TABLE 2. WELL INFORMATION MAJOR MODIFICATION TO WYPDES PERMIT WY0052361 MIDDLE PRONG FEDERAL, PENNACO ENERGY, INC., APRIL 2006

Change	Well Name	API Number	Coal Seam	Well Depth	Discharges to Outfall #
ADD	BLM FED 10-5-54-75 A	49-005-55674	ANDERSON	915	AWAO
	BLM FED 14-5-54-75 A	49-005-54459	ANDERSON	1100	AWAO
	BLM FED 14-8-54-75 I	49-005-54457	ANDERSON	1008	AWAO
	BLM FED 15-19-54-75 A/CY	49-005-54453	ANDERSON/CANYON	1000	AWAO
	BLM FED 16-8-54-75 A	49-005-54452	ANDERSON	1020	AWAO
	BLM FED 1-7-54-75 A	49-005-47621	ANDERSON	1128	AWAO
ADD	BLM FED 4-33-54-75 A/CY	49-005-55673	ANDERSON/CANYON	870	AWAO
	BLM FED 5-29-54-75 ACY	49-005-48873	CANYON	780	AWAO
DELETE	BLM FED 5-33-54-75 ACY	49-005-54456	ANDERSON/CANYON	N/A	AWAO
	BLM FED 5-8-54-75A	49-005-47622	ANDERSON	1140	AWAO
	BLM FED 6-20-54-75 A/CY	49-005-54458	ANDERSON/CANYON	N/A	AWAO
	BLM FED 7-29-54-75 ACY	49-005-48871	SMITH/ANDERSON/CANYON	977	AWAO
DELETE	BLM FED 7-5-54-75 A	49-005-54451	ANDERSON	N/A	AWAO
	BLM FED 7-8-54-75A	49-005-48025	ANDERSON	1108	AWAO
	BLM FED 9-21-54-75 A/CY	49-005-54455	ANDERSON/CANYON	N/A	AWAO
	BLM FED 9-24-54-76 A/CY	49-005-54454	ANDERSON/CANYON	990	AWAO
DELETE	BLM FED 9-28-54-75 A/CY	Not Available	ANDERSON/CANYON	N/A	AWAO
	BLM FED 9-5-54-75 A	49-005-48024	ANDERSON	N/A	AWAO
	BLM FED 9-7-54-75A	49-005-47569	ANDERSON	1126	AWAO
DELETE	CRUMP 13-33-54-75 ACY	Not Available	ANDERSON/CANYON	N/A	AWAO
DELETE	CRUMP 15-32-54-75 ACY	Not Available	ANDERSON/CANYON	N/A	AWAO
DELETE	CRUMP 15-33-54-75 ACY	Not Available	ANDERSON/CANYON	N/A	AWAO
	DUBE FED 10-13-54-76 A	49-005-54441	ANDERSON	740	AWAO
	DUBE FED 10-14-54-76 A	49-005-54440	ANDERSON	967	AWAO
	DUBE FED 10-17-54-75 I	49-005-54442	ANDERSON	1050	AWAO
	DUBE FED 1-19-54-75 A/CY	49-005-54447	ANDERSON/CANYON	1115	AWAO
	DUBE FED 12-20-54-75 ACY	49-005-54444	ANDERSON/CANYON	N/A	AWAO
	DUBE FED 13-13-54-76A	49-005-54443	ANDERSON	900	AWAO
	DUBE FED 13-21-54-75 A/CY	49-005-54445	ANDERSON/CANYON	N/A	AWAO
	DUBE FED 16-20-54-75 A/CY	49-005-54448	ANDERSON/CANYON	N/A	AWAO
	DUBE FED 5-28-54-75 A/CY	49-005-54446	ANDERSON/CANYON	889	AWAO
ADD	ODEGARD 4-13-54-76 AR	49-005-43050	CANYON	808	AWAO
ADD	ODEGARD FED 11-18-54-75A	49-005-47677	ANDERSON	765	AWAO
	ODEGARD FED 1-18-54-75A	49-005-47625	ANDERSON	N/A	AWAO
	ODEGARD FED 12-17-54-75 A	49-005-54450	ANDERSON	925	AWAO
	ODEGARD FED 15-18-54-75A	49-005-47676	ANDERSON	823	AWAO
	ODEGARD FED 4-19-54-75 A/CY	49-005-54449	CANYON	1036	AWAO
	ODEGARD FEDERAL 11-7-54-75A	49-005-47565	ANDERSON	1022	AWAO
	ODEGARD FEDERAL 3-18-54-75A	49-005-47567	ANDERSON	1065	AWAO
	SPELLMAN 2-32-54-75 A/CY	49-005-54460	ANDERSON/CANYON	846	AWAO
	SPELLMAN FED 13-29-54-75 A/CY	49-005-48848	ANDERSON	869	AWAO
	SPELLMAN FED 15-29-54-75 A/CY	49-005-48868	SMITH/ ANDERSON/ CANYON	880	AWAO
	STATE 13-16-54-75 A	49-005-51066	ANDERSON	N/A	AWAO
	STATE 13-10-54-75 A	49-005-55188	ANDERSON	N/A N/A	OAWA
	STATE 9-16-54-75 A STATE 9-16-54-75 A	49-005-551058	ANDERSON	N/A N/A	OAWA
	STATE 9-10-54-75 A STATE SMITH 1A-16-5475	49-005-51058	ANDERSON	N/A 686	OAWA
חבורדר		*			
DELETE	STATE SMITH 13-16-5475	49-005-50916	SMITH	484	AWAO
DELETE	STATE-SMITH 1W-16 54-75	49-005-50754	WALL	1263	AWAO

*AWAO - all wells to all outfalls

TABLE 3. COMBINED WYPDES PERMIT WATER BALANCE CALCULATIONS MAJOR MODIFICATION TO WYPDES PERMIT WY0052361 MIDDLE PRONG FEDERAL, PENNACO ENERGY, INC., APRIL 2006

roducing Formation	No. of Wells	bpd/well -	gpd/well	cfs/well	Total Flow	Annual Volu	me ¹
2.2					(cfs)	(cu-ft)	(ac-ft)
Anderson	24	550	23,100	0.04	0.86	21,639,108	497
Anderson/Canyon	16	750	31,500 _	0.05	0.78	20,105,425	462
				Total Estimate	d Annual Produ	ction Volume (ac-ft)	958
TIMATED RESERVO	DIR EXFILTRA	TION (17% ANNU	AL DECLIN	E RATE)			
WYPDES Pe	rmit	Reservoir	Capacity	Estimated Ex		Estimated Annual	Exfiltration
			-	(1,300 bpd/	20 ac-ft)		
			(ac-ft)	(gpd)	(cfs)	(cu-ft)	(ac-ft)
WY005236	51	Baby	0.65	1,624	0.00	79,223	` 2 `
		Broken Jaw	7.1	17,735	0.03	865,357	20
		Cactus Patch	11.5	28,726	0.04	1,401,634	32
		Calf Pasture	15.5	38,718	0.06	1,889,159	43
		County Road #1	2.9	7,244	0.01	353,456	8
		County Road #2	9.5	23,731	0.04	1,157,872	27
		Early Summer	4.7	11,740	0.02	572,842	13
		Horse Pasture	3.4	8,493	0.01	414,396	10
		Hunting	13.6	33,972	0.05	1,657,585	38
		Little BLM	2.15	5,371	0.01	262,045	6
		Medley	1.7	4,247	0.01	207,198	5
		Mesa #1	4.2	10,491	0.02	511,901	12
		Mesa #2	2.8	6,994	0.01	341,267	8
		Mesa #3	2.2	5,495	0.01	268,139	6
		Mesa Top	0.83	2,073	0.00	101,161	2
		Mizer	3.8	9,492	0.01	463,149	11
		New Pasture	13.3	33,223	0.05	1,621,020	37
		Oasis	13.87	34,647	0.05	1,690,493	39
		Old Wagon	7.0	17.486	0.03	853,169	20
		Pine Cut	4.1	10,242	0.02	499,713	11
		R11	5.0	12,490	0.02	609,406	14
		Red Hill Crossing	2.6	6,495	0.02	316,891	7
		Seven	3.8	9,492	0.01		11
		South Pine	7.3		0.03	463,149 889,733	20
		Stud Pasture	11.7	18,235			
		Whale	55.7	29,226 139,136	0.05	1,426,010	33
		Windmill #1	22.66		0.22 0.09	6,788,784	156
		vvinamin #1	22.00	56,604	0.09	2,761,829	63
WY004828	3	Knuckles	17.9	44,713	0.07	2,181,674	50
		Rose	21.0	52,457	0.08	2,559,506	59
						Subtotal	762
TIMATED OUTFALL	. FLOW	<u> </u>				· · · · · · · · · · · · · · · · · · ·	
WYPDES Pe	rmit	No. of Wells	gpd	Total F		Estimated Annual C	
attors of Natification	MM0020024	40	22 000	(gpd)	(cfs)	(cu-ft)	(ac-ft)
Letters of Notification	VV 1 UU39934	12	23,000	276,000	0.43	13,466,730	309

WYPDES Permit	No. of Wells	gpd	Total Fig	w	Estimated Annual (Outfall Flow
Letters of Notification WY0039934	12	23,000	(gpd) 276,000	(cfs) 0.43	(cu-ft) 13,466,730	(ac-ft) 309
Letters of Notification WY0040797	9	23,000	207,000	0.32	10,100,047 Subtotal	232 541

ESTIMATED INJECTION FLOW

WYPDES Permit	No. of Wells	bpd	Total Flo	ow .	Estimated Annual C	outfall Flow
NA NA	2	7,500	(gpd) 630,000	(cfs) 0.97	(cu-ft) 30,739,274	(ac-ft) 706
					Subtotal	706

ESTIMATED EXCESS CAPACITY (ANNUAL LOSSES - ANNUAL PRODUCTION = EXCESS CAPACITY)

Annual Losses	-	Annual Production	=	Excess Capacity
(ac-ft)		(ac-ft)		(ac-ft)
2,009		958		1,051

bpd - barrels per day

gpd - gallons per day

cfs - cubic feet per second

cu-ft - cubic feet

ac-ft - acre feet

¹ Calculated cumulative volume with initial production rate reduced at 50% over the first year of production.

² Calculated exfiltration assumes an average decline of 8.5% over the first year of reservoir retention. Abbreviations:



ENERGY LABORATORIES, INC. * 1105 West First Street. * Gillette, WY 82716 Toll Free 866.686.7175 * 307.686.7175 * Fax 307.682.4625 * gillette@energylab.com

LABORATORY ANALYTICAL REPORT

Client: MOC-CMS-Pennaco Energy

Site Name: Felix

Project: Produced_Water Samp FRQ/Type: OT

Client Sample ID: PW_005_35909_51_74_S

Location: SWSW_19_51N_74W

Lab ID: G04070366-001

Report Date: 07/29/04

Collection Date: 07/15/04 09:45

DateReceived: 07/15/04

Sampled By: Tracy Schrupp

Matrix: AQUEOUS

Tracking Number: 36316

MAJOR IONS Bicarbonate as HCO3 672 mg/L 5 A232	3	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
**** Performed by Sampler MAJOR IONS Bicarbonate as HCO3 672 mg/L 5 A232 Chloride 14 mg/L 1 E300 Fluoride 0.7 mg/L 0.1 E300 Sulfate 2 mg/L 1 E300 Calcium 10 mg/L 1 E200 Magnesium 4 mg/L 1 E200 Potassium 4 mg/L 1 E200 Sodium 246 mg/L 1 E200 MAJOR IONS - MILLIEQUIVALENTS Calcium, meq 0.49 meq/L 0.05 E200 Magnesium, meq 0.32 meq/L 0.08 E200 Sodium, meq 10.7 meq/L 0.04 E200 METALS, DISSOLVED Boron ND ug/L 0.1 E200 Chromium ND ug/L 1	ARAMETERS						-	
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Bicarbonate as HCO3 672 mg/L 5 A232 Chloride 14 mg/L 1 E300 Fluoride 0.7 mg/L 0.1 E300 Sulfate 2 mg/L 1 E200 Calcium 10 mg/L 1 E200 Magnesium 4 mg/L 1 E200 Sodium 246 mg/L 1 E200 MAJOR IONS - MILLIEQUIVALENTS Calcium, meq 0.49 meq/L 0.05 E200 Magnesium, meq 0.32 meq/L 0.08 E200 Magnesium, meq 0.32 meq/L 0.04 E200 METALS, DISSOLVED Boron ND ug/L 0.1 E200 Cadmium ND ug/L 0.1 E200 Chromium ND ug/L 1 E200 Iron ND ug/L 3 E200 Manganese 18 <td< td=""><td>formed by Sampler</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	formed by Sampler							
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Boron	104	, 10.7	meq/L		0.04		1.200.7	07/20/04 21.40 / 1111
Boron	, DISSOLVED							
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Lead ND ug/L 2 E200 Manganese 18 ug/L 10 E200 Mercury ND ug/L 0.06 E200 Nickel ND ug/L 10 E200 Silver ND ug/L 3 E200 Zinc ND ug/L 10 E200 METALS, TOTAL Barium 268 ug/L 100 E200 METALS, TOTAL RECOVERABLE Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200		ND	ug/L		30		E200.7	07/20/04 09:05 / rlh
Manganese 18 ug/L 10 E200 Mercury ND ug/L 0.06 E200 Nickel ND ug/L 10 E200 Silver ND ug/L 3 E200 Zinc ND ug/L 10 E200 METALS, TOTAL Barium 268 ug/L 100 E200 METALS, TOTAL RECOVERABLE Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200		ND			2		E200.8	07/22/04 15:45 / car
Mercury ND ug/L 0.06 E200 Nickel ND ug/L 10 E200 Silver ND ug/L 3 E200 Zinc ND ug/L 10 E200 METALS, TOTAL Barium 268 ug/L 100 E200 METALS, TOTAL RECOVERABLE Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200	se ·	18	•		10		E200.7	07/20/04 09:05 / rlh
Silver ND ug/L 3 E200 Zinc ND ug/L 10 E200 METALS, TOTAL Barium 268 ug/L 100 E200 METALS, TOTAL RECOVERABLE Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200		ND	-		0.06		E200.8	07/22/04 15:45 / car
Silver ND ug/L 3 E200 Zinc ND ug/L 10 E200 METALS, TOTAL Barium 268 ug/L 100 E200 METALS, TOTAL RECOVERABLE Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200		ND	ug/L		10		E200.7	07/20/04 09:05 / rlh
Zinc ND ug/L 10 E200 METALS, TOTAL Barium 268 ug/L 100 E200 METALS, TOTAL RECOVERABLE Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200		ND	•	-	. 3		E200.8	07/22/04 15:45 / car
Barium 268 ug/L 100 E200 METALS, TOTAL RECOVERABLE Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200		ND	_		10		E200.7	07/20/04 09:05 / rlh
Barium 268 ug/L 100 E200 METALS, TOTAL RECOVERABLE Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200	TOTAL							
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Aluminum ND ug/L 50 E200 Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200	TOTAL BECOVERABLE							
Antimony ND ug/L 5 E200 Arsenic 0.2 ug/L 0.1 E200	, IOIAL RECOVERABLE	ND	ua/l		50	-	E200.7	07/21/04 00:37 / rlh
Arsenic 0.2 ug/L 0.1 E200			•				E200.7	07/21/04 08:37 / car
•			•					07/21/04 08:37 / car
Refyllium Ni iid/i u us Esuu		ND	ug/L		0.03		E200.8	07/21/04 08:37 / car
			-				E200.8	07/21/04 08:37 / car

Report Definitions:

RL - Analyte reporting limit.

QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: MOC-CMS-Pennaco Energy

Site Name: Felix

Project: Produced_Water

Samp FRQ/Type: OT

Client Sample ID: PW_005_35909_51_74_S

Location: SWSW 19 51N 74W

Lab ID: G04070366-001

Report Date: 07/29/04

Collection Date: 07/15/04 09:45

DateReceived: 07/15/04

Sampled By: Tracy Schrupp

Matrix: AQUEOUS

Tracking Number: 36316

Analyses	Result	Units Qualifiers	RL QCL	Method	Analysis Date / By
METALS, TOTAL RECOVERABLE					
Thallium	ND	ug/L	1	E200.8	07/21/04 08:37 / car
NON-METALS					
Alkalinity, Total as CaCO3	551	mg/L	5	A2320 B	07/16/04 20:32 / mli
Conductivity @ 25 C	1030	umhos/cm	1	A2510 B	07/15/04 18:29 / ser
Cyanide, Total Automated	ND	ug/L	5	E335.3	07/19/04 16:08 / kp
Hardness as CaCO3	41	mg/L	10	A2340 B	07/28/04 14:25 / cw
Phenolics, Total Recoverable	ND	ug/L	10	E420.2	07/28/04 10:56 / kp
Sodium Adsorption Ratio (SAR)	16.8	unitless	0.1	Calculation	07/28/04 14:26 / cw
Solids, Total Dissolved TDS @ 180 C	608	mg/L	20	A2540 C	07/19/04 13:40 / mli
Total Petroleum Hydrocarbons	ND	mg/L	1.0	SW1664A	07/19/04 14:44 / aps
DATA QUALITY					
A/C Balance	0.58	%		A1030 E	07/28/04 14:23 / cw
Anions	11.5	meg/L	0.01	A1030 E	07/28/04 14:23 / cw
Cations	11.6	meq/L	0.01	A1030 E	07/28/04 14:23 / cw
RADIOCHEMICAL					
Radium 226	6.4	pCi/L	0.2	E903.0M	07/19/04 10:18 / df
Radium 226 precision (±)	0.4	pCi/L	0.2	E903.0M	07/19/04 10:18 / df

Report Definitions:

RL - Analyte reporting limit.

QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Client: MOC-CMS-Pennaco Energy

Site Name: Railroad_Project

Project: **NPDES**

Samp FRQ/Type: IN A S1

Client Sample ID: DP_WY0039047_002 TP

Location: SESW_6_52N_75W

Lab ID: G04030162-001

Report Date: 03/22/04

Collection Date: 03/09/04 14:20

DateReceived: 03/10/04

Sampled By: Tracy Schrupp

Matrix: AQUEOUS

Tracking Number: 27899

Analyses	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
FIELD PARAMETERS							
pH, field	7.72	s.u.				FIELD	03/09/04 14:20 / ***
*** Performed by Sampler							
MAJOR IONS							
Bicarbonate as HCO3	867	mg/L		5		A2320 B	03/11/04 10:18 / mli
Chloride	10	mg/L		1		E300.0	03/11/04 11:00 / mli
Sulfate	ND	mg/L		1		E300.0	03/11/04 11:00 / mli
Calcium	28	mg/L		1		E200.7	03/12/04 14:18 / rlh
Magnesium	7	mg/L		1		E200.7	03/12/04 14:18 / rlh
Sodium	264	mg/L		1.		E200.7	03/12/04 14:18 / rlh
MAJOR IONS - MILLIEQUIVALENTS							
Calcium, meq	1.38	meq/L		005		E200.7	03/12/04 14:18 / rlh
Magnesium, meq	0.56	meq/L		0.08	3	E200.7	03/12/04 14:18 / rlh
Sodium, meq	11.5	meq/L		0.04		E200.7	03/12/04 14:18 / rlh
METALS, DISSOLVED							
Cadmium	ND	ug/L		0.1		E200.8	03/12/04 14:14 / jw
Copper	ND	ug/L		1		E200.8	03/12/04 14:14 / jw
Iron	ND	ug/L		30		E200.7	03/12/04 14:18 / rlh
Lead	ND	ug/L		2		E200.8	03/12/04 14:14 / jw
Manganese	58	ug/L		10		E200.7	03/12/04 14:18 / rlh
Mercury	ND	ug/L		0.06	,	E200.8	03/12/04 14:14 / jw
Zinc	ND	ug/L		10		E200.7	03/12/04 14:18 / rlh
METALS, TOTAL							
Barium	420	ug/L		100		E200.7	03/12/04 18:01 / rlh
METALS, TOTAL RECOVERABLE							
Aluminum	ND	ug/L		50		E200.7	03/12/04 17:57 / rlh
Arsenic	0.2	ug/L		0.1		E200.8	03/12/04 13:28 / jw
Selenium	ND	ug/L		5		E200.8	03/12/04 13:28 / jw
							· · · · · · · · · · · · · · · · · · ·
NON-METALS		-		±			
Alkalinity, Total as CaCO3	710	mg/L		5		A2320 B	03/11/04 10:18 / mli
Conductivity @ 25 C	1280	umhos/cn	1	1		A2510 B	03/10/04 12:57 / daa
Hardness as CaCO3	97.3	mg/L		10		A2340 B	03/15/04 12:40 / cw
Sodium Adsorption Ratio (SAR)	11.6 791	unitless		0.1		Calculation A2540 C	03/15/04 12:40 / cw 03/11/04 10:04 / mli
Solids, Total Dissolved TDS @ 180 C		mg/L					

Report Definitions: RL - Analyte reporting limit.

QCL - Quality control limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: MOC-CMS-Pennaco Energy

Site Name: Railroad_Project

Project: NPDES

Samp FRQ/Type: IN_A_S1

Client Sample ID: DP_WY0039047_002_TP

Location: SESW_6_52N_75W

Lab ID: G04030162-001

Report Date: 03/22/04

Collection Date: 03/09/04 14:20

DateReceived: 03/10/04

Sampled By: Tracy Schrupp

Matrix: AQUEOUS

Tracking Number: 27899

Analyses	I	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
NON-METALS				-	-			
Total Petroleum Hydrocarbons		ND	mg/L		1.0		SW1664A	03/15/04 12:05 / aps
RADIOCHEMICAL								
Radium 226		0.9	pCi/L	,	0.2		E903.0M	03/12/03 11:05 / df
Radium 226 precision (±)		0.2	pCi/L				E903.0M	03/12/03 11:05 / df

Report Definitions:

RL - Analyte reporting limit.

QCL - Quality control limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client Sample ID: DP WY0043095_001_ET30 Location: NWSE_25_54N_76W Marathon Oil Company Wild Horse Project. A_S1_IR G05040486-001 WYPDES Samp FROTType: Site Name: Project: Client Lab ID:

04/25/05 13:40

05/05/05

Report Date: Collection Date: DateReceived:

Gayla Essen

Sampled By:

04/28/05

Matrix: AQUEOUS

1: 47724		Analysis Date / By	
Insching Number: 47724		Kestiff Units Qualities Method	
,		Kestiff Chilis	
	Dage 18 1 1-21-		
	Analyses		

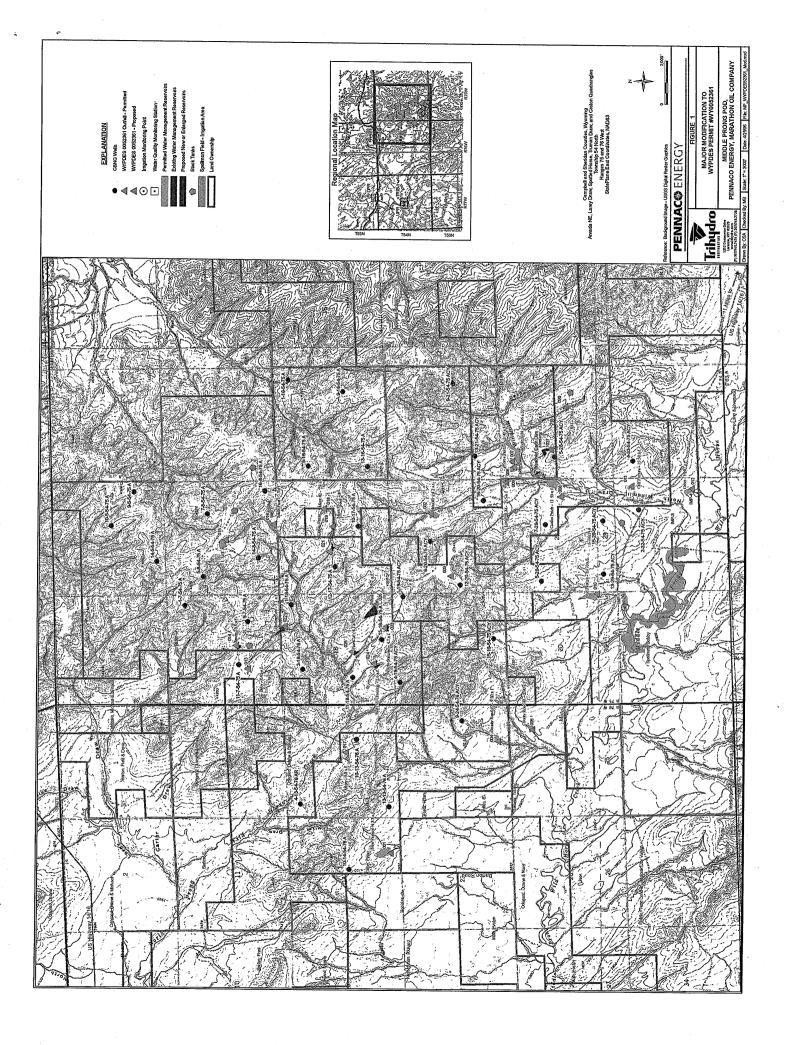
A view of view						
Autorite	Result	Chits	Result	Units Qualit	Units Qualifier Method	Analysis Date / By
FIELD PARAMETERS						
pH, field *** Performed by Sampler	7.80	\$.U.			FIELD	04/25/05 13:40 / ***
MAJOR IONS		*				
Bicarbonate as HCO3	1650	mg/L	27.0	medil	A2320 B	1 TA-21 FOLTONO
	60	mg/L	0.24	meq/L	E300,0	04/27/05 19:58 / mm
Liuorde	5	mg/L	6.0	meq/L	E300.0	04/27/05 19:58 / mil
	403	mg/	O, 15	med/L	E300.0	04/27/05 19-58 / mil
Calcium	Ø	mg/L	1.14	meq/L	E200.7	05/03/05 04:17 / 15-
Magnesium	**	₩ ₀ /L	2.5	med/L	E200.7	05/03/05 01:17 / Nu
Fotassium	6 0	mg/L	0.21	meq/L	E200.7	05/03/05 01-17 / files
Social	8	John May	23.8	7bem	E200.7	05/03/05 01:17 / JW
METALS, DISSOLVED						i.
lion	1230	UQ/L			E200.7	OLYBINE 19:55 Illi
Manganese	7	rg.			E200.7	04/28/05 13:59 / Ilw
METALS, TOTAL						,
Barlun	289	Ton			E200.7	04/28/05 23:51 / jw
METALS, TOTAL RECOVERABLE						i
Arsenio	0	ugl			E200.8	04/28/05 20:52 / car
NON-METALS						
Alkalinity, Total as CaCO3	1350	Ö			A2320 R	DAPPENE ALANT FEET
Conductivity @ 25 C	2260	umhos/cm			A2510 B	DAIDAME 44-04 [III]
Sodium Adsorption Ratio (SAR)	22.3	unitless			Calculation	05/03/05 18:08 / chv
Total Petroleum Pydrocarbona	Q.	mol			SWIGGAA	04/28/05 12:56 / ton
DATA QUALITY						
A/C Balance	2.50	**			A1030 E	06/03/06 16:07 / retu
Anions	27.4	med.			A1030 E	05/03/05 16:07 / chu
Carrons	26.3	meq/L			A1030 E	05/03/05 16:07 / clw
RADIOCHEMICAL						
Radium 226		SCH.			A10 2000	TO SERVE HOLDERS
Radium 226 precision (±)	0.3	, 50 00			E903,0M	04/27/05 13-20 / df
10 : 0						
Hood Releta						
d Poelstra						*
111111111111111111111111111111111111111						

Project Manager

RL - Analyte reporting limit. QCL - Quality control limit. Report Definitions:

MCL - Maximum conteminant level. ND - Not detected at the reporting limit.

2





DATABASES(S) - WY-CS

H Merchant v. State Dept. of Corrections, 168 P.3d 856, 2007 WL 2935000, 2007 WY 159, , Wyo., October 10, 2007(No. 06-278.)

...behavioral incentive for Wyoming inmates and indicated that, since Mr. Merchant was not a Wyoming inmate, the State had no tangible interest in encouraging his good behavior while he was incarcerated in Colorado. Moreover, given the fact that the State has no...

Halliburton Energy Services, Inc. v. Gunter, 167 P.3d 645, 2007 WL 2729583, 2007 WY 151, 2. Wyo., September 20, 2007(Nos. 06-205, S-07-0076.)

...13 13 k. Persons Entitled to Sue. Standing is short for standing to sue, which requires a legally protectible and tangible interest at stake in the litigation. [10] 13 Action 13I Grounds and Conditions Precedent 13 13 k. Persons Entitled to Sue. The phrase "tangible interest," as required for standing, has been equated with the phrase personal stake in the outcome. [11] 13 Action 13I Grounds ...

...probate action. [9] [10] [11] [¶ 11] "Standing" is short for "standing to sue," which requires a " legally protectible and tangible interest at stake in the litigation." Olsten Staffing Servs., Inc. v. D.A. Stinger Servs., Inc., 921 P.2d 596, 599 (Wyo.1996) (quoting Black's Law Dictionary 1405 (6th ed.1990)). The phrase "tangible interest" has been equated with the phrase "personal stake in the outcome." Goshen Irrigation Dist. v. Wyo. State Bd. of Control ...

...the appointment of the estate's personal representative because a wrongful death action defendant does not have a personal stake or tangible interest in that appointment. Neither may a wrongful

death action defendant intervene in the probate estate action as a matter of...
Wilson v. Board of County Com'rs of County of Teton, 153 P.3d 917, 2007 WL 755182, 2007 WY 42, , Wyo., March 14, 2007(No. 05-213.)

...k. Persons Entitled to Sue. The fundamental inquiry in determining whether a party has standing is whether he has a tangible interest in the controversy. Representing Appellants: Karen Budd-Falen and Brandon L. Jensen of Budd-Falen Law Offices, LLC, Cheyenne, WY ...

... analysis of the major issues. The fundamental inquiry in determining whether a party has standing is whether he has "'a tangible interest' in the controversy." Pedro/Aspen, ¶ 10, 94 P.3d at 416 [¶ 30] Unquestionably, when the Wilsons applied for approval of their subdivision, they had a tangible interest in the validity of the LDRs. Nevertheless, as we explained earlier, they relinquished their right to contest the conditions imposed ...

...have other land subject to the land use regulations that they wish to subdivide. Thus, they no longer have a "tangible interest" in the validity of the land use regulations. On the basis of the record extant, the Wilsons do not currently...

DATABASES(S) - WY-CS

4. C In re Adoption of CF, 120 P.3d 992, 2005 WL 2237996, 2005 WY 118, Wyo., September 16, 2005(No. C-04-13.)

...outcome of the controversy. [30] 13 Action 13I Grounds and Conditions Precedent 13 13 k. Persons Entitled to Sue. The **tangible interest** requirement for standing guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. [31] 17 ...

...a 'personal stake in the outcome of the controversy.' This personal stake requirement has been described in Wyoming as a 'tangible interest' at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy." Id., ¶ 8, quoting...

5. C Snider v. Kirchhefer, 115 P.3d 1, 2005 WL 1528813, 2005 WY 71, Wyo., June 30, 2005(No. 04-140.)

...the statute governing standing to file petition to declare abandonment of holder's water appropriation right uses the word "might," the "tangible interest at stake" requirement dictates that the petitioner allege and prove a reasonable likelihood that the abandonment will benefit or resuscitation ...

...State Board of Control, 926 P.2d 943, 948 (Wyo.1996) Indeed, although the statute uses the word "might," the "tangible interest at stake" requirement dictates that the petitioner allege and prove a reasonable likelihood that the abandonment will benefit or resuscitation... In re Guardianship of McNeel, 109 P.3d 510, 2005 WL 729650, 2005 WY 36, Wyo., March 31, 2005(No. 04-132.)

...challenge husband's petition seeking voluntary appointment of a guardian and conservator on his own behalf; wife had pecuniary, personal, and **tangible interests** at stake in pending divorce action, wife had previously indicated her concern that husband was mentally incapacitated and delusional, and ...

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. In Sinclair Oil Corp ...

...claim for relief. Matter of Various Water Rights in Lake DeSmet Reservoir, 623 P.2d 764, 767 (Wyo.1981) The **tangible interest** requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. Laramie Rivers Co. v... Pedro/Aspen, Ltd. v. Board of County Com'rs for Natrona County, 94 P.3d 412, 2004 WL 1585293, 2004 WY 84, Wyo., July 16, 2004(No. 02-236.)

...Entitled to Sue. A litigant has standing when he has a personal stake in the outcome of the controversy; this **tangible interest** requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. [5] 118A Declaratory Judgment ...

...Ordinances and By-Laws. If the claim is made that a regulation exceeds the county's statutory authority, a party whose **tangible interest** is affected by that regulation has standing to challenge it. [8] 122A Deposits and Escrows 122AII Conditional Deposits or Escrows ...

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. Id. (quoting Roe v...

DATABASES(S) - WY-CS

- 8. M Cathcart v. Meyer, 88 P.3d 1050, 2004 WL 943451, 2004 WY 49, , Wyo., May 04, 2004(Nos. 04-32, 04-33, 04-34.)
 - ...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy." State ex rel. Bayou...
- 9. Rock Springs Land and Timber, Inc. v. Lore, 75 P.3d 614, 2003 WL 22004954, 2003 WY 100, , Wyo., August 26, 2003(No. 01-158.)
 - ...a personal stake in the outcome of the controversy; this personal stake requirement has been described in Wyoming as a **tangible interest** at stake. [24] 13 Action 13I Grounds and Conditions Precedent 13 13 k. Persons Entitled to Sue. The standing requirement that a litigant have a **tangible interest** in the litigation guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. [25] 390 ...
 - ...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. Schulthess v. Carollo, 832...
- 10. ▶ Director of Office of State Lands & Investments v. Merbanco, Inc., 70 P.3d 241, 2003 WL 21297192, 177 Ed. Law Rep. 558, 2003 WY 73, Wyo., June 06, 2003 (Nos. 01-261, 02-18.)
 - ...it, not those who may seek to purchase school lands. We have consistently held that standing requires a legally protectable, **tangible interest** to be at stake. Gooden v. State, 711 P.2d 405 (Wyo.1985) (defendant had no right to plea bargain...
- (Wyo.1985) (defendant had no right to plea bargain...

 11. H Riedel v. Anderson, 70 P.3d 223, 2003 WL 21277119, 177 Ed. Law Rep. 545, 2003 WY 70, , Wyo., June 04, 2003(Nos. 02-60, 02-61.)
 - ...Conditions Precedent 13 13 k. Persons Entitled to Sue. A litigant is said to have standing when he has a **tangible interest** at stake in the outcome of the controversy; this **tangible interest** requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. [4] 118A Declaratory Judgment ...
 - ...a 'personal stake in the outcome of the controversy.' This personal stake requirement has been described in Wyoming as a 'tangible interest' at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy." Id. (quoting Roe v...

DATABASES(S) - WY-CS

Sinclair Oil Corp. v. Wyoming Public Service Com'n, 63 P.3d 887, 2003 WL 367071, 2003 WY 22, , Wyo., February 21, 2003 (No. 01-228.) 12.

> ...a 'personal stake in the outcome of the controversy.' This personal stake requirement has been described in Wyoming as a 'tangible interest' at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy." State ex rel. Bayou ...

...claim for relief. Matter of Various Water Rights in Lake DeSmet Reservoir, 623 P.2d 764, 767 (Wyo.1981) The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. Laramie Rivers Co. v ...

...controversy. Certainly, while Amoco and Citation try to minimize Sinclair's involvement, Sinclair is properly situated with sufficient pecuniary, personal, and tangible interests at stake. Such involvement assures Sinclair is properly motivated to vigorously advocate its position. Sinclair has also shown potential injury...

Union Pacific R.R. v. Trona Valley Federal Credit Union, 57 P.3d 1203, 2002 WL 31492286, 2002 WY 165, Wyo., November 04, 2002(No. 01-263.)

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. Id. Trona Valley FCU contends that Union Pacific has no interest or stake in its employee's loss of ...

...lack thereof) of Trona Valley's motion. [¶ 10] As noted, standing exists when a party has "a personal stake or tangible interest in the outcome of the controversy." The Wyoming statutory scheme specifically contemplates the participation of the garnishee in the legal...
In re Estate and Guardianship of Andrews, 39 P.3d 1021, 2002 WL 171295, 113 A.L.R.5th 675,

14. 2002 WY 17, Wyo., February 05, 2002(No. 00-267.)

> ...had standing to collaterally attack, as a void judgment, the adjudication of ward as incompetent; cousin and aunt had a tangible interest in validity of deed, they were affected by adjudication of ward as incompetent, and conservators brought cousin and aunt into ...

> ...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. Schulthess v. Carollo, 832 ...

...deed declared valid by the court as a proper conveyance and quieting title to the residence in them is a "tangible interest" sufficient to give them a "personal stake in the outcome of the controversy. "We further note, in fact, it was...

Jolley v. State Loan and Inv. Bd., 38 P.3d 1073, 2002 WL 93125, 2002 WY 7, , Wyo., January 25, 15. 2002(No. 00-330.)

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy." State ex rel. Bayou...

DATABASES(S) - WY-CS

 Roe v. Board of County Com'rs, Campbell County, 997 P.2d 1021, 2000 WL 211569, Wyo., February 24, 2000(No. 99-148.)

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy." State ex rel. Bayou...

17. C Ahearn v. Ahearn, 993 P.2d 942, 1999 WL 1136639, Wyo., December 14, 1999(Nos. 98-39, 98-40, 98-215.)

...divorce action and contract purchaser in litigation involving contract for the sale of a trailer home; ex-husband had no **tangible interest** in either ex-wife's or purchaser's choice of counsel. Representing Appellant: Francis B. Ahearn, Pro Se. Representing Appellees: Kathleen Ahearn ...

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. Robinson v. Hamblin, 914 P.2d 152, 154 (Wyo.1996) (quoting Schulthess v. Carollo, 832 P.2d 552 ...

...have standing to pursue such a claim: "Since Hamblin Jr. was an opposing party in this suit, Robinson has no 'tangible interest' in Hamblin Jr.' s right to legal representation." Id. Like the plaintiff in Robinson v. Hamblin, Mr. Ahearn has no tangible interest in either Mrs. Ahearn's or Lewis' choice of counsel. We acknowledge some courts recognize that a party who is not... Southwestern Public Service Co. v. Thunder Basin Coal Co., 978 P.2d 1138, 1999 WL 243442.

18. C Southwestern Public Service Co. v. Thunder Basin Coal Co., 978 P.2d 1138, 1999 WL 243442, , Wyo., April 27, 1999(Nos. 98-139, 98-140.)

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. Robinson v. Hamblin, 914 P.2d 152, 154 (Wyo.1996) (citing Schulthess v. Carollo, 832 P.2d 552...

19. C Hirschfield v. Board of County Com'rs of County of Teton, 944 P.2d 1139, 1997 WL 562299, , Wyo., September 11, 1997(No. 96-203.)

...law. [6] Trustee asserts that homeowners have not presented a justiciable controversy because they do not have standing or a **tangible interest** at stake. The jurisprudential principles underlying the standing, ripeness, and mootness doctrines are embodied in the definition of a justiciable...

20. Goshen Irr. Dist. v. Wyoming State Bd. of Control, 926 P.2d 943, 1996 WL 628260, Wyo., October 31, 1996(No. 95-162.)

...a "personal stake in the outcome of the controversy" which has further been described in our case law as a "tangible interest." Id., at 557. In the context of a petition for abandonment of a water right, the petitioner must allege and...

21. P Olsten Staffing Services, Inc. v. D.A. Stinger Services, Inc., 921 P.2d 596, 1996 WL 350884, , Wyo., June 27, 1996(Nos. 95-197, 95-198.)

...court * * *. The requirement of "standing" is satisfied if it can be said that the plaintiff has a legally protectible and **tangible interest** at stake in the litigation. BLACK'S LAW DICTIONARY 1405 (6th ed. 1990) (citation omitted, emphasis added). [3] [4] When a...

DATABASES(S) - WY-CS

22. **C** Robinson v. Hamblin, 914 P.2d 152, 1996 WL 143528, , Wyo., April 01, 1996(No. 95-139.)

> ...Sue. Litigant is said to have "standing" when he has personal stake in outcome of controversy, or in other words, tangible interest at stake. [4] 13 Action 13I Grounds and Conditions Precedent 13 13 k. Persons Entitled to Sue. Plaintiff had no "tangible interest" in defendant's right to legal representation, and thus he lacked standing to raise any issue concerning defendant's legal representation. [5 ...

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. Schulthess v. Carollo, 832 P.2d 552, 556-57 (Wyo. 1992) (citations omitted). Since Hamblin Jr. was an opposing party in this suit, Robinson has no "tangible interest" in Hamblin Jr.'s right to legal representation. Second, Robinson is foreclosed from bringing this issue on appeal since he did...
State ex rel. Bayou Liquors, Inc. v. City of Casper, 906 P.2d 1046, 1995 WL 684080, , Wyo., November 20, 1995(No. 94-254.)

23.

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. Laramie Rivers, 708 P...

Christensen v. Oedekoven, 888 P.2d 228, 1995 WL 11369, , Wyo., January 13, 1995(No. 94-14.) 24.

> ... of partnership property by creditor who had judgment against partner where purchaser, from whom property was redeemed, had personal and tangible interest in outcome of litigation, and if creditor had not improperly redeemed property, purchaser could have applied to sheriff for deed ...

> ...nature. Pinther v. Hiett, 884 P.2d 631, 633 (Wyo.1994) "[T]he standing doctrine requires that the litigants have a tangible interest at stake in the subject matter before the court." Reiman Corporation v. City of Cheyenne, 838 P.2d 1182, 1186 ...

...a 'personal stake in the outcome of the controversy.' This personal stake requirement has been described in Wyoming as a 'tangible interest' at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy." Pinther, 884 P.2d...

Pinther v. Hiett, 884 P.2d 631, 1994 WL 553224, , Wyo., October 12, 1994(No. 93-276.) C 25.

> ...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. Laramie Rivers, 708 P ...

...no personal stake in the controversy. Hiett responds that the petition stated a sufficient factual basis to disclose that a tangible interest was at stake. As the natural father of the two minor children, Hiett alleged that his children were occasionally in...

Joe Johnson Co. v. Wyoming State Bd. of Control, 857 P.2d 312, 1993 WL 272398, , Wyo., July C 26. 23, 1993(Nos. 92-187, 92-188.)

> ...572, 580 (1939) (door is not open for just anybody to initiate abandonment proceedings). Under Wyoming's present abandonment statute, the "tangible interest at stake" requirement necessitates that Carollo allege and prove a reasonable likelihood that the abandonment of Schulthess' water rights will...

28.

DATABASES(S) - WY-CS

27. Reiman Corp. v. City of Cheyenne, 838 P.2d 1182, 1992 WL 277256, , Wyo., October 13, 1992(No. 91-269.)

...13 Action 13I Grounds and Conditions Precedent 13 13 k. Persons Entitled to Sue. Standing doctrine requires that litigants have **tangible interest** at stake in subject matter before court. [6] 13 Action 13I Grounds and Conditions Precedent 13 6 k. Moot, Hypothetical ...

...economy and the wise exercise of judicial power. To these ends, the standing doctrine requires that the litigants have a **tangible interest** at stake in the subject matter before the court; the ripeness doctrine requires that the issue presented to the court ...

...render the issue legally insignificant. Jurisprudential concerns for judicial economy and concrete adverseness are not implicated. The parties have a "tangible interest at stake" in that \$71,000 hinges upon resolution of the withdrawal/rescission issue. See Nixon v. Fitzgerald, 457 U.S. 731... Schulthess v. Carollo, 832 P.2d 552, 1992 WL 104593, Wyo., May 20, 1992(No. 91-150.)

...7] 13 Action 13I Grounds and Conditions Precedent 13 13 k. Persons Entitled to Sue. Standing requirement that litigant have **tangible interest** at stake guarantees that litigant is sufficiently interested in case to present justiciable controversy. [8] 361 Statutes 361VI Construction and ...

...405VI Appropriation and Prescription 405 151 k. Abandonment or Forfeiture of Rights. Under abandonment statute, standing requirement that litigant have **tangible interest** at stake necessitated that petitioner for abandonment of another person's water rights allege and prove reasonable likelihood that abandonment of ...

...a "personal stake in the outcome of the controversy." This personal stake requirement has been described in Wyoming as a "tangible interest" at stake. The tangible interest requirement guarantees that a litigant is sufficiently interested in a case to present a justiciable controversy. Laramie Rivers, 708 P...

29. Richardson Associates v. Lincoln-Devore, Inc., 806 P.2d 790, 1991 WL 13271, , Wyo., February 11, 1991(No. 88-238.)

...because both involve amendments during the course of the litigation and, in each case, the assignor or transferor retained a **tangible interest** in the results. Here, an entirely new claim against a new defendant was introduced into Owner's original lawsuit. The real...

30. State Bd. of Equalization v. Jackson Hole Ski Corp., 737 P.2d 350, , Wyo., May 22, 1987(No. 86-298.)

...of Equalization to enjoin them from doing business if tax were not paid, so that vendors had legally protectable and **tangible interest** affording them standing to challenge rules and regulations of State Tax Commission. W.S.1977, §§ 39-6-407(a) 39 ...

...the Wyoming State Tax Commission for the reason that they demonstrated no threatened or actual injury or legally protectable and **tangible interest** adversely affected by the Rules and Regulations of the Wyoming State Tax Commission. In support of their claim, appellants cite ...

...appellants argue that the incident of the tax is not on them, and consequently they have no legally protectable and **tangible interest** affording them standing to challenge the Rules and Regulations of the Wyoming State Tax Commission. [1] While it is true...

DATABASES(S) - WY-CS

Gooden v. State, 711 P.2d 405, , Wyo., December 19, 1985(No. 84-59.) 31. C

> ...the putatively illegal action." In a similar vein, we have said that a plaintiff must have a "legally protectable and tangible interest at stake." Cremer v. State Board of Control, Wyo., 675 P.2d 250, 254 (1984) In Armijo v. State, Wyo...

Laramie Rivers Co. v. Wheatland Irr. Dist., 708 P.2d 20, Wyo., October 10, 1985(No. 84-52.) 32.

> ...92 S.Ct. 1361, 1364, 31 L.Ed.2d 636, 641 (1972) In Wyoming this personal stake has been described as a 'tangible interest at stake.' Cremer v. State Board of Control, Wyo., 675 P.2d 250, 254 (1984) Washakie County School District Number...

33. International Ass'n of Fire Fighters, Local No. 279 v. Civil Service Com'n of Fire Dept. of City of Cheyenne, 702 P.2d 1294, Wyo., July 12, 1985(No. 84-244.)

...92 S.Ct. 1361, 1364, 31 L.Ed.2d 636, 641 (1972) In Wyoming this personal stake has been described as a "tangible interest at stake." Cremer v. State Board of Control, Wyo., 675 P.2d 250, 254 (1984) Washakie County School District Number...

34. Cremer v. State Bd. of Control, 675 P.2d 250, Wyo., January 09, 1984(Nos. 5793, 5794.)

> ...in summary, we said that for a party to have standing to sue he must have a legally protectable and tangible interest at stake in the litigation, Guidry v. Roberts, La.App., 331 So.2d 44, 47 (1976); he must be such a...

35. Washakie County School Dist. No. One v. Herschler, 606 P.2d 310., Wyo., January 15, 1980(No. 5145.)

> ...court. The requirement of 'standing' is satisfied if it can be said that the plaintiff has a legally protectible and tangible interest at stake in the litigation. Guidry v. Roberts, La.App., 331 So.2d 44, 50 Standing is a jurisdictional issue which...

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