

From: "Miller, Lou -- MFG, Inc." <Lou.Miller@mfgenv.com>
To: <esb@nrc.gov>
Date: 1/21/05 12:15PM
Subject: FW: Split Rock - Docket: 40-8907

> -----Original Message-----

> From: Miller, Lou -- MFG, Inc.
> Sent: Friday, January 21, 2005 10:01 AM
> To: 'rwv@nrc.gov'
> Cc: 'lcorte@phelpsdodge.com'; 'hwsfish@aol.com'
> Subject: Split Rock

> Bill/ Elaine,

> This e-mail is written in response to your question regarding the risk
> assessment we performed for the Split Rock site. Specifically, we
> submitted a risk assessment in February 12, 2004 with additional
> information submitted on May 24, 2004 and November 5, 2004 that showed
> that there would be no adverse impacts to human health or the
> environment if groundwater near the site and inside of the restricted area
> boundary were to be used for agricultural or livestock watering. You
> recently ask me to provide a discussion of how the predicted water quality
> would compare to the Wyoming DEQ groundwater standards for agricultural
> and livestock water.

> As you recall, the four constituents of concern and the predicted maximum
> concentrations are as follows:

> Nitrate - 10 to 50 mg/l
> Sulfate - 250 mg/l
> Manganese - 0.5 mg/l
> Uranium - 0.5 mg/l

> These concentrations are expected to occur relatively close to the mouths
> of the valleys that are northwest and southwest of the reclaimed tailings
> impoundment.

> There are only three locations where groundwater can be accessed for
> livestock or agricultural purposes. These three locations are the two
> McIntosh parcels and the small parcel in the Red Mule area that is
> privately owned. These three locations are shown on the attached figure.
> Groundwater access for all uses for all other locations within the
> proposed long-term care boundary is controlled by Western Nuclear and that
> control would be transferred to the DOE as part of license termination.

> The Wyoming DEQ standards for agricultural and livestock are published in
> Chapter 8 of their Water Quality Rules and Regulations. A copy of the
> cover and the applicable table listing the standards is attached.

> As can be seen, Wyoming does not have any agricultural or livestock
> standards for nitrate. In addition, the agricultural and livestock stands
> for uranium are 5 mg/l which is well below any expected value for uranium.
> There is no manganese standard for livestock and the sulfate value for
> livestock is 3000 mg/l which is much greater than any expected value.

> The agricultural standards for sulfate (200 mg/l) and manganese (0.2 mg/l)
> slightly exceed the conservative estimate of the potential future values
> for these constituents. Sulfate is a conservative constituent at the site
> and is therefore expected to exist at concentrations greater than 200 mg/l
> in groundwater at the McIntosh property immediately west of the site. The
> private property at Red Mule and the McIntosh property north east of the
> site will be less likely to have concentrations greater than 200 mg/l. In
> fact, the concentrations outside the northwest valley are decreasing and
> will approach background concentrations in the next 50 to 100 years.

>
> At any rate, elevated sulfate values would not pose a risk to public
> health or the environment. Water with sulfate in excess of 200 mg/l (or
> 400 to 2000 mg/l as suggested by the UN Food and Agricultural Organization
> as documented in the previously submitted risk assessment) would only lead
> to decreased productivity of crop land if water with high sulfate
> concentrations were used over a long period of time as sulfate salts could
> build up in the soil. It is highly unlikely that water from the McIntosh
> parcel west of the site would be used for irrigation purposes since an
> existing surface water irrigation system currently exists and is used to
> irrigate this area.

>
> Due to the limited mobility of manganese in the aquifer, it is highly
> unlikely that manganese values in excess of background would exist at any
> of the three locations where water could be used for agricultural or
> livestock uses. However, even if groundwater concentrations approached
> 0.5 mg/l in these areas, there would be no adverse impact to human health
> or the environment. As stated in the previous submittals, manganese
> values of up to 10 mg/l are reported as being acceptable for livestock and
> irrigation. It is possible that some scaling or plugging of pipe lines
> used for irrigation could occur if concentrations as high as 0.5 mg/l were
> to exist and if the irrigation were to occur over a long period of time.
> As stated above, the area that would be most likely to have values for
> manganese that might approach 0.5 mg/l would be the McIntosh property just
> west of the site. This area is irrigated by surface water and it is
> highly unlikely that groundwater would be used for irrigation.

>
> In conclusion, the previously submitted documents show that there would be
> no adverse impacts to human health or the environment if water inside the
> proposed restricted area boundary were to be used for agricultural or
> livestock purposes. Only two groundwater constituents are predicted to
> possibly exceed the Wyoming DEQ standards for agricultural purposes.
> These parameters, sulfate and manganese would not cause any adverse
> impacts to human health or the environment if groundwater were to be used
> for irrigation. It is possible that over long periods of time, sulfate
> salts could accumulate in the soil which could lead to decreased
> productivity and it is possible that manganese scaling could occur in
> irrigation pipes that would require the pipes to need to be replaced.
> However, the most likely place where groundwater could be accessed with
> concentrations approaching the predicted levels is in an area where
> surface water is being used for irrigation and it is therefore highly
> unlikely that groundwater from this area would be used for irrigation.

>
> I hope that this addresses your concerns.

>
> Please let me know if there is any additional information you might need
> to complete your review.

>
> Lou Miller

>

> <<PROPERTY-04.pdf>> <<chp-08.pdf>>

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From: "Miller, Lou -- MFG, Inc." <Lou.Miller@mfgenv.com>

Created By: Lou.Miller@mfgenv.com

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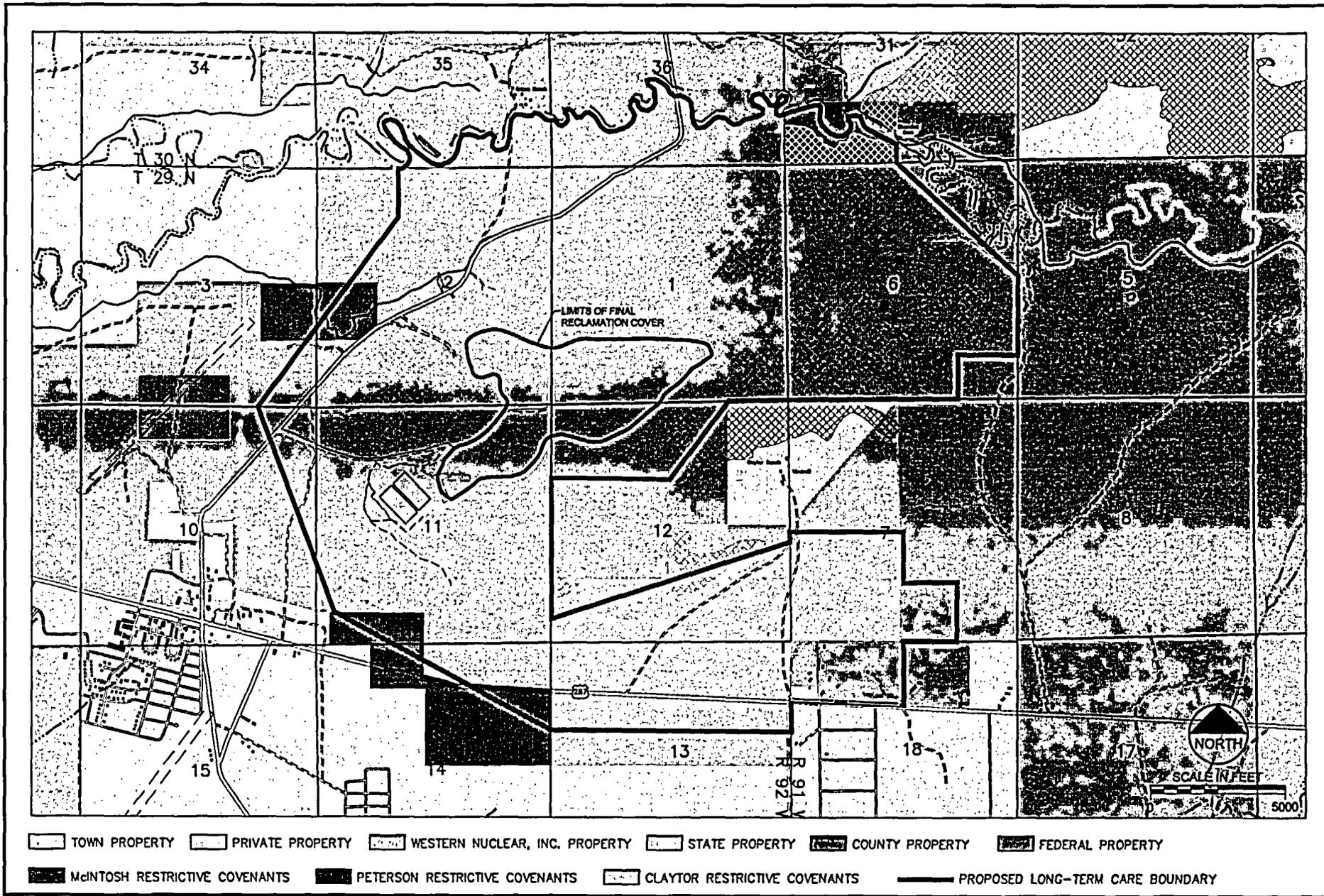
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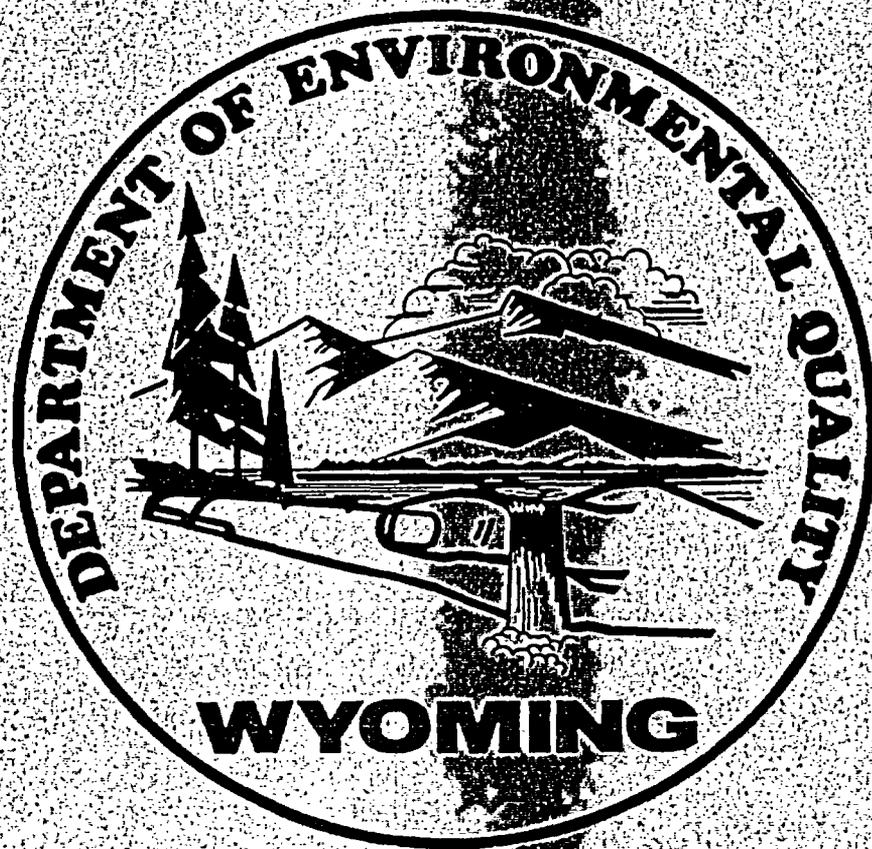
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MFG, Inc.
consulting scientists and engineers

FIGURE 1
WESTERN NUCLEAR, INC. SPLIT ROCK
LAND OWNERSHIP

Date: JANUARY 2005
Project: 003347/2004
File: PROPERTY-04.DWG



Water Quality

Rules and Regulations

Chapter 8

TABLE I

UNDERGROUND WATER CLASS	I Domestic	II Agriculture	III Livestock
Use Suitability	Concentration*	Concent.*	Concent.*
Constituent or Parameter			
Aluminum (Al)	---	5.0	5.0
Ammonia (NH ₃ -N)	0.5 ⁸	---	---
Arsenic (AS)	0.05	0.1	0.2
Barium (Ba)	1.0	---	---
Beryllium (Be)	---	0.1	---
Boron (B)	0.75	0.75	5.0
Cadmium (Cd)	0.01	0.01	0.05
Chloride (Cl)	250.0	100.0	2000.0
Chromium (Cr)	0.05	0.1	0.05
Cobalt (Co)	---	0.05	1.0
Copper (Cu)	1.0	0.2	0.5
Cyanide (CN)	0.2	---	---
Fluoride (F)	1.4-2.4 ⁷	---	---
Hydrogen Sulfide (H ₂ S)	0.05	---	---
Iron (Fe)	0.3	5.0	---
Lead (Pb)	0.05	5.0	0.1
Lithium (Li)	---	2.5	---
Manganese (Mn)	0.05	0.2	---
Mercury (Hg)	0.002	---	0.00005
Nickel (Ni)	---	0.2	---
Nitrate (NO ₃ -N)	10.0	---	---
Nitrite (NO ₂ -N)	1.0	---	10.0
(NO ₃ +NO ₂)-N	---	---	100.0
Oil & Grease	Virtually Free	10.0	10.0
Phenol	0.001	---	---
Selenium (Se)	0.01	0.02	0.05
Silver (Ag)	0.05	---	---
Sulfate (SO ₄)	250.0	200.0	3000.0
Total Dissolved Solids (TDS)	500.0	2000.0	5000.0
Uranium (U)	5.0	5.0	5.0
Vanadium (V)	---	0.1	0.1
Zinc (Zn)	5.0	2.0	25.0
pH	6.5-9.0s.u.	4.5-9.0s.u.	6.5-8.5s.u
SAR	---	8	---
RSC	---	1.25 meq/l	---
Combined Total Radium 226 and Radium 228 ⁹	5pCi/l	5pCi/l	5pCi/l
Total Strontium 90	8pCi/l	8pCi/l	8pCi/l
Gross alpha particle radioactivity (including Radium 226 but excluding Radon and Uranium) ⁹	15pCi/l	15pCi/l	15pCi/l

*mg/l, unless other wise indicated