



To: Lander BLM Field Office RMP Project Manager
From: Randy Moore VP Exploration Stonegate Agricom Ltd.
Subject: BLM Lander Field Office Draft RMP Comment Letters
Date: December 4, 2011

Comments to the Lander Field Office Draft RMP

Section 3.2.6 Leasable Minerals – Other Solid Leasable Minerals

These comments are written in response to the draft Resource Management Plan for the Lander Field Office. The focus of these comments is the phosphate leasing proposals under the “preferred” alternative D within the RMP Draft document. The alternative D proposal restricts the ability to lease phosphates in essentially all of the areas in the district where the occurrences have been identified by the extensive work of the US Geological Survey and the US Bureau of Mines. While my comments are urging the opening of all areas to leasing, there are certain areas that have been demonstrated to have significant potential by extensive government funded work conducted by these governmental agencies which alternative D ignores.

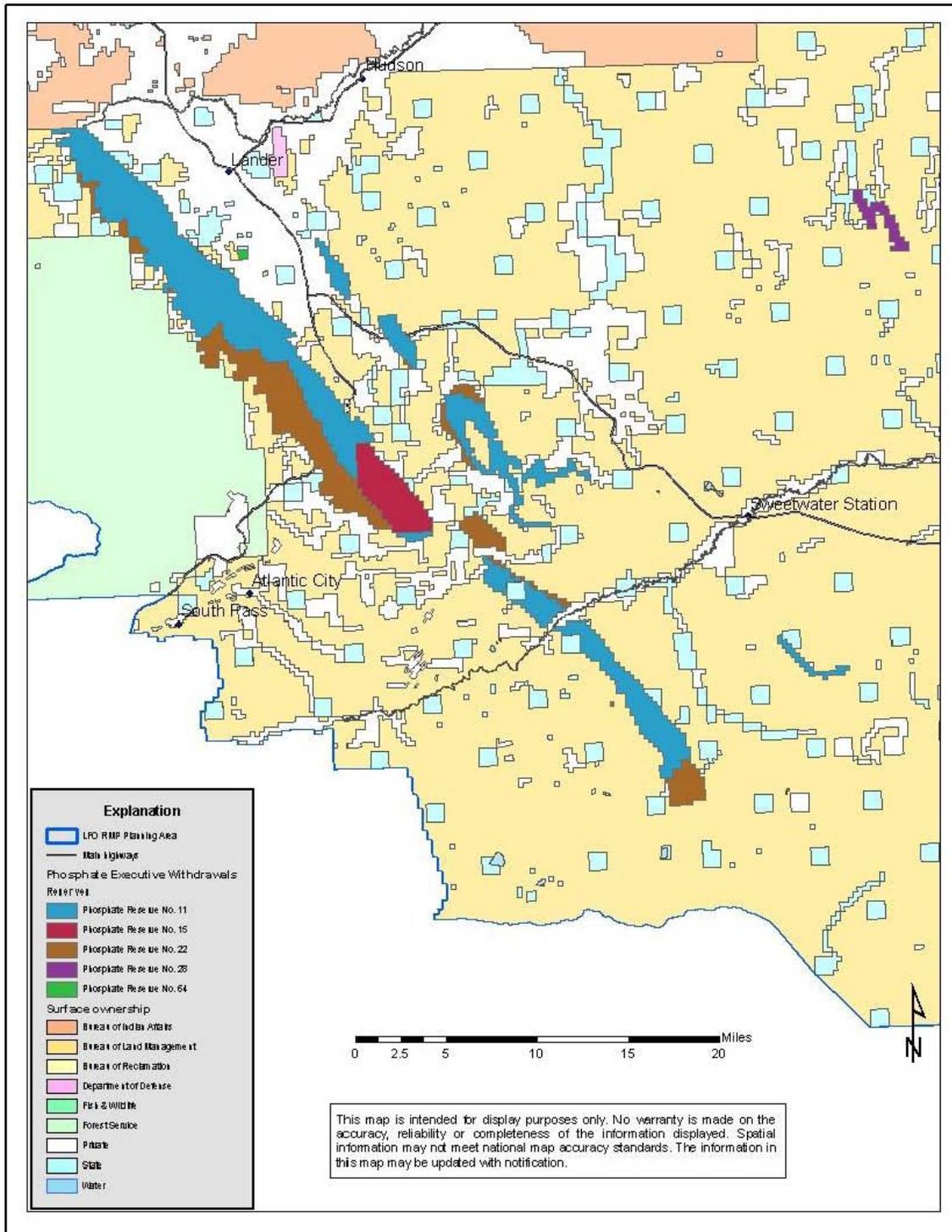
Work by the US Bureau of Mines (USBM) and the US Geological Survey (USGS) have demonstrated that areas west of Lander, Wyoming hold significant resource potential and that the thickness and grades of those phosphate rich beds would be attractive to companies for exploration efforts and possible development. Most of the conclusions regarding the handling of phosphates under the RMP are based on the Lander Field Office Final Mineral Occurrence and Development Potential Report, 2009. This report has some inaccuracies with regards to the economic development potential of the Lander phosphates as well as making some faulty assumptions. The comments contained herein address those inaccuracies and argue for a modification of the boundaries drawn for the areas closed to the leasing of phosphates in Alternative D of the RMP. The preferred alternative for phosphate leasing from an industry and economic point of view would be A or C which take into consideration that the BLM is mandated to provide for resource uses.

Looking at the phosphate reservations within the preferred alternative D it appears that it effectively excludes most localities which have been demonstrated to contain potential reserves. Phosphate potential was recognized around the turn of the century and phosphate reservations or withdraws were established in the early 1900’s. These withdraws are located in the resource management area under consideration. The phosphate withdraws in Wyoming are presented below:



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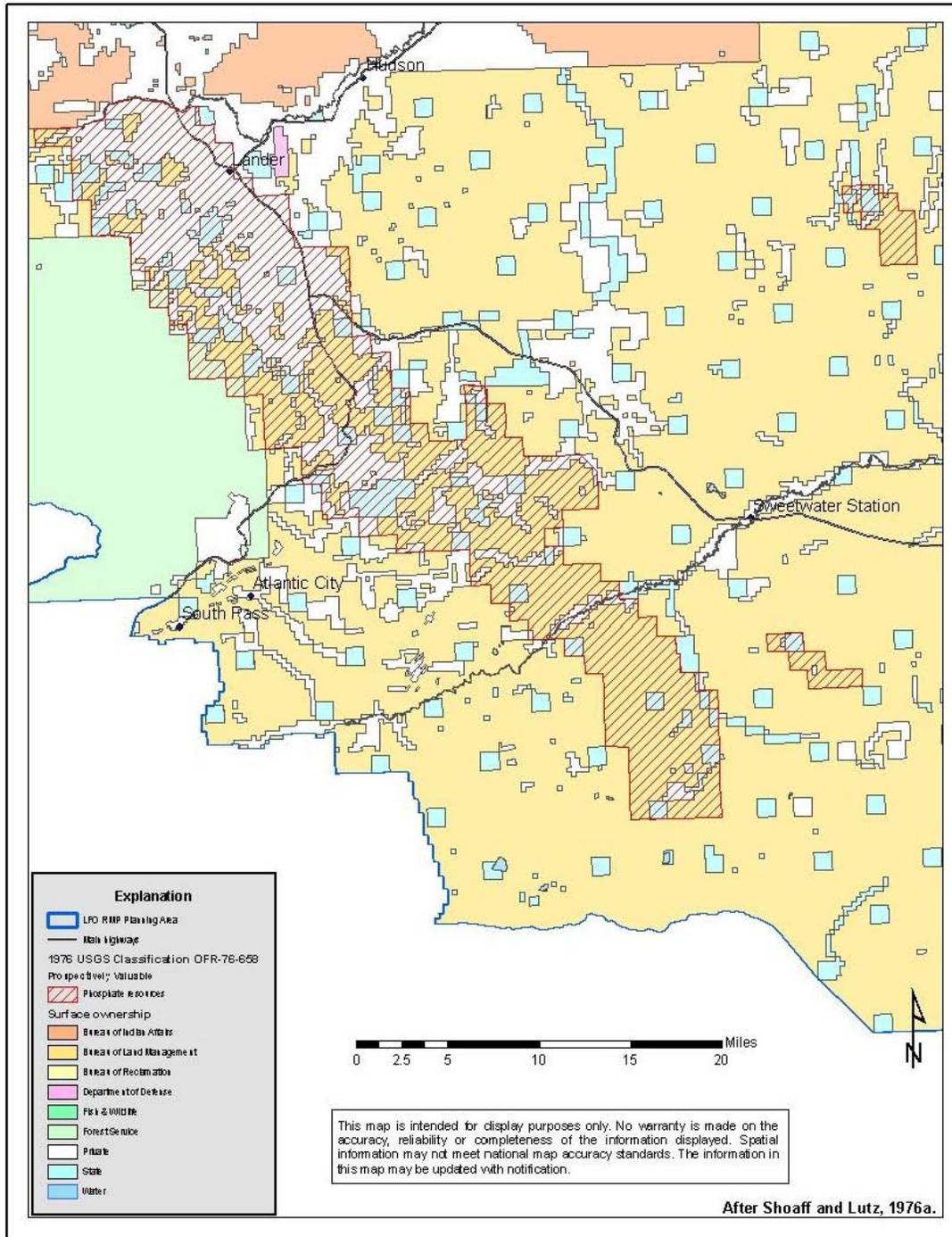




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Both the USBM and the USGS have conducted extensive programs to help define and quantify the phosphate resources in the Western US. These programs defined and even drilled some of the resource areas. The findings of the USBM and USGS are presented in the figures below.



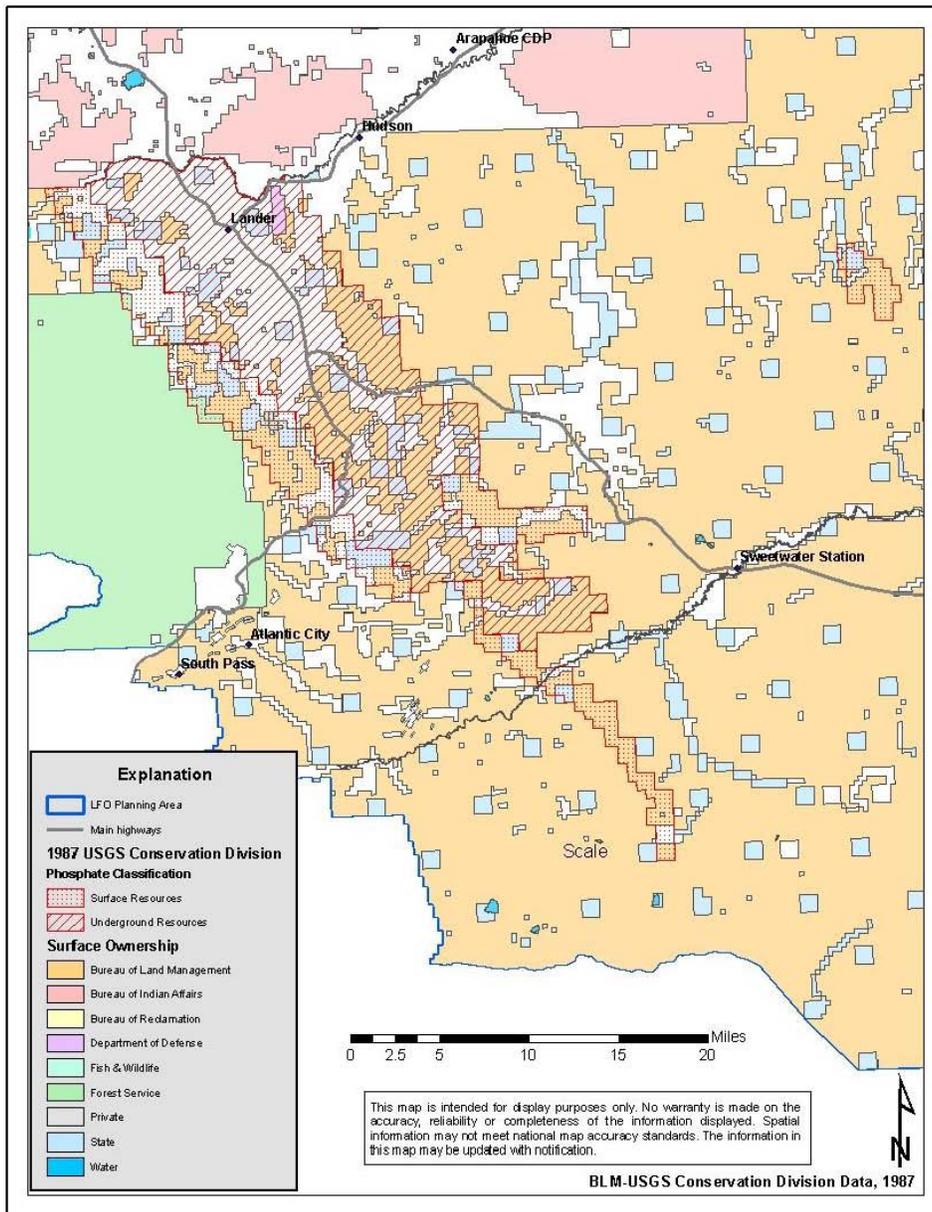


This figure is from the USGS work published in 1976 showing phosphate lands. Of importance for the BLM to consider is that these lands have been identified as having resource potential but have yet to be explored in any detail. This prevents any sweeping conclusions from being made regarding the economic development of these lands and the potential for phosphate resources. Without these areas being open to leasing there is no ability to assess the quantity and quality of any resources in the region, thus taking a valuable asset away from the communities in the region.

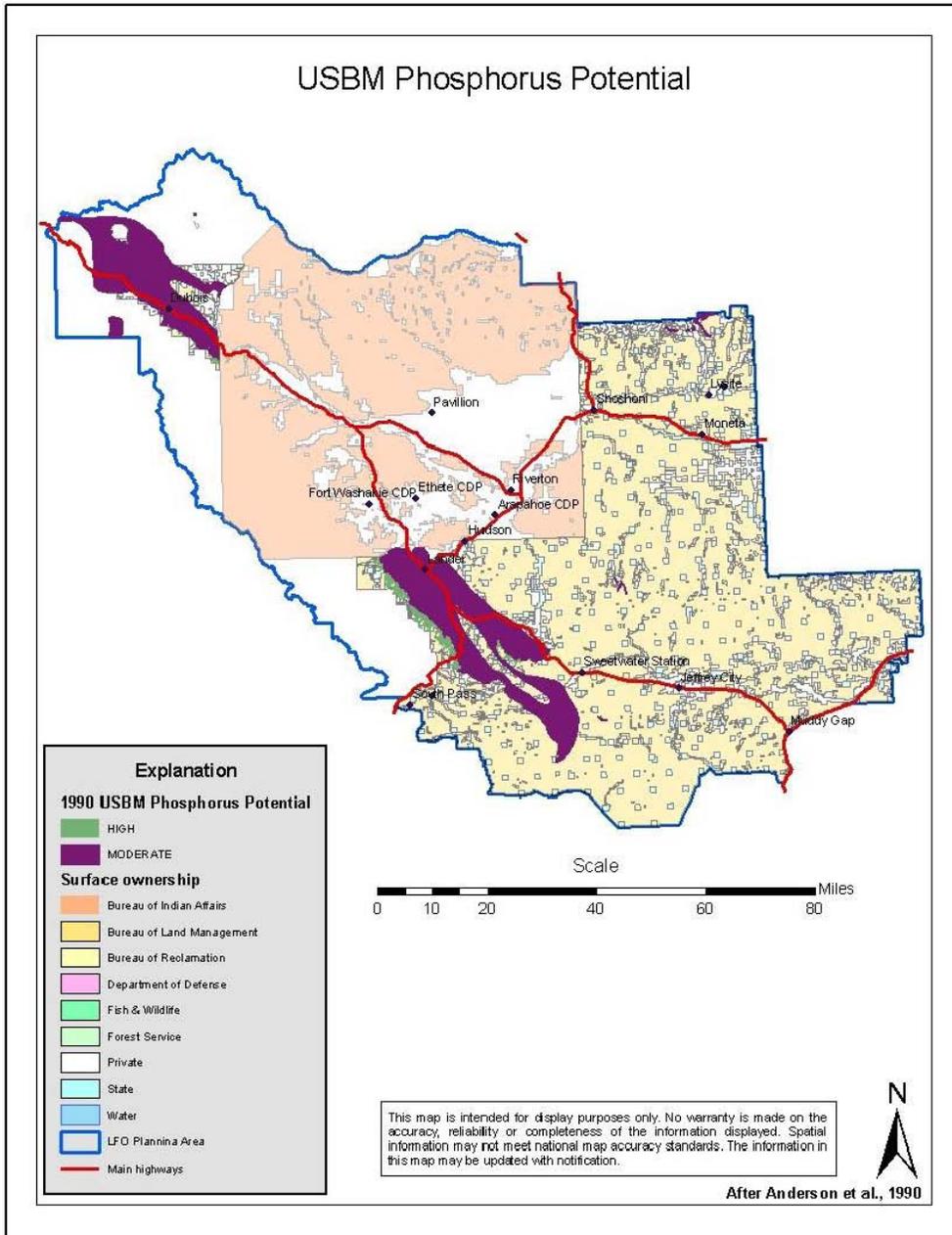
The area is characterized by shallow east dipping beds of the Phosphoria formation which extend over a wide area. Another report assessing the phosphate potential in the Lander area was published in 1987 and shows a similar pattern. This later map follows the outcrop trace of the high-phosphate beds in the Phosphoria formation but does not take into account the down dip projections as the map above does. It is this down dip potential that is important in the evaluation the true potential of the area. If underground mining is considered there are vast areas that may be productive in the Lander district. Eliminating this potential robs the communities of possible jobs and the US of critical production potential.



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The resources were looked at again and evaluated in 1990 by the USBM which produced the following map;



It is clear that the USBM continued to believe there is good phosphate potential in the Lander area which is supported by the published maps presented above.

In looking at the criteria for the phosphate lands designation the Lander Field Office Final Mineral Occurrence and Development Potential Report (2009) notes that the factors taken into consideration



include; grade, strip ratio and deposit size and also notes that the phosphate rock must be weathered or oxidized to produce sufficient grades to warrant mining. It is important to consider that some companies are looking at areas like those covered under the RMP for underground mining potential thus eliminating the strip ratio consideration. This area has beds of sufficient thicknesses and grade and with little structural disruption to accommodate underground mining operations. It is also important to note that there are continual changes in technologies for mining and extraction of materials as well as price changes for commodities. These factors can dictate what is minable and what is not. In section 4.3.3.3 of the report that forms the basis of the mineral assessment in the RMP (Final Mineral Occurrence and Development Potential Report) it suggests that the demand and prices for phosphate are soft. This is not the case in the current markets and in the forecasts for the foreseeable future. Phosphate prices spiked in 2008 at over \$1,200/t for diammonium phosphate but fell to around \$300/t in 2009. Since then, they have more than doubled to trade in July at around \$620/t. There are production problems in the Middle East and North Africa, which account for a significant amount of global output. Syria, Egypt and Algeria have all had issues, and a three-million-ton-a-year project in Saudi Arabia, had been delayed until the first quarter of next year. US fertilizer giant Mosaic has also run into some permitting trouble at its South Meade mine in Florida, which could force the company to import phosphate rock, thereby tightening global supplies.

Section 4.3.3.4 of the Final Mineral Occurrence and Development Potential Report discusses the development potential of phosphates. Much of this section is inaccurate and not reflective of current market conditions. It is a mistake to make decisions on development potential based on a snapshot in time. Parameters are constantly changing and opportunities develop with those changes. This section states that “..other factors are thought to currently make planning area phosphate deposits uneconomical to develop.” The factors this statement refers to are; deposits are thin and lower grade than other areas of the phosphate field, costs associated with mine startup capitalization, permitting, increasing severance taxes, under-utilized phosphate capacity, and a shift to foreign production. If one looks at the western phosphate field as a whole it is seen that while the deposits in the west are higher grade and thicker they come with a high degree of structural complexity. Deposits in the Lander area can be traced for long distances with little structural complexities to worry about. It can also be seen that the grades noted in some of the areas by the USGS and the USBM are +20% P₂O₅. In the USBM report titled An Evaluation of the Western Phosphate Industry and its Resources, there is a discussion of the Twin Creek area and the work conducted by the USBM. They state “This (area) has been of particular interest since it contains the richest deposits in the range...” . This report further discusses the Twin Creek to Tweed creek area where the USBM did some drilling to test the phosphate. Their results show a very good thickness of 7.5 to 8 feet and grades all above 21% P₂O₅. In addition a 4 foot sample taken on Tweed Creek carried 27.6% P₂O₅, again demonstrating good thickness and grade within this portion of the field. Looking at mining activities throughout the Western phosphate field it was common for mines to be developed on beds 3 feet in thickness at the + 20% grades as is seen in the Twin Creek-Tweed Creek area. The report also concludes that there is a resource of 20.3 million tons above drainage level entry points and another 7.4 million tons for every 100 feet below that entry level. An underground mining operation could potentially exploit +50 million tons of material in this area. Thus the conclusion that the phosphate deposits are uneconomical to develop based on thickness and grade are inaccurate. The other elements noted as making the deposits uneconomic are listed as; being associated with startup



capitalization, permitting, and taxes. These parameters are no different in the Lander area than in other places phosphate deposits are being exploited. Currently the deposit at Paris Hills is being drilled and moved forward for underground development. The costs associated with this operation would not be significantly different than those associated with development in the Lander area. The final issue regarding “under-utilized phosphate capacity and a shift to foreign production” is also inaccurate at this point in time as there have been production problems in the Middle East and North Africa, which account for a significant amount of global output. Syria, Egypt and Algeria have all had issues, and a three-million-ton-a-year project in Saudi Arabia, had been delayed until the first quarter of next year. The majority of the world’s resources reside in areas of social unrest in North Africa / Middle East and US fertilizer giant Mosaic has also run into some permitting trouble at its South Meade mine in Florida, which could force the company to import phosphate rock, thereby tightening global supplies.

The whole premise, that the development of phosphate deposits in the Lander area should be considered uneconomic, is inaccurate and based on a faulty analysis. The economic evaluation of a product should be left to industry as that is where the expertise lies. It is strongly urged that the areas identified as having potential for phosphate resources by the US Bureau of Mines and the US Geological Survey remain available for the leasing of phosphate in the RMP being considered by the Lander BLM Field Office.