New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018807 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Quealy Mine

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06803 **Old MAS #:**
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site
Development Status: Occurrence
Plant Type:
Mining Method:
Year of First Production:
Years of Production:
Year of Discovery:
Discoverer:
Site Commodity Types: Energy
Mineralized Area Name:
Record added: 12-MAR-2002 00:00:00
Last Deposit Modification: 07-OCT-2012 07:58:22
Old MRDS #: DC06803
Possible Dupes:

Deposit Type: Stratabound
Operation Type: Unknown
Plant Identifier:
Milling Method:
Year of Last Production:
Discovery Method:
Significant: N
Location Problem:
Added By: MRDS migration
Last Table Modified: BIB_REFERENCES - Update
Old MAS #:

Name Information:

Name	Status
Quealy Mine	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Ogden

Geo-Coordinate Information:

Datum of Entry: WGS 84

Latitude: N-41-57-59 41.96639

Longitude: W-110-35-23 -110.58972

WGS 84 Latitude: 41.96639

WGS 84 Longitude: -110.58972

UTM Zone: 12N **Northing:** 4645912 **Easting:** 533997

Point of Reference: Pit

Location Accuracy:

Relative Position: Was located center of section. A.B. Wilson moved to the prospect shown on the topo at the north edge of Sec. 21.

Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal

Township: 023N

Range: 116W

Section: 21

Fractional Sections:

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Kemmerer Quad Geologic Map	0100000	WY	Regional Geology
USGS	Kemmerer Quadrangle, Swelling Clays Map	0100000	WY	Regional Geology
USGS	Kemmerer	0100000	WY	Blm Surface Management Status Map
USGS	Kemmerer Ne	0024000	WY	24k Graphic Oq
USGS	Kemmerer	0100000	WY	100k Topo Map
USGS	Ogden Quad Leasable Mineral And Waterpower Land Classification Map	0250000	UT	Mineral Resources
USGS	Ogden 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	UT	Regional Geology
USGS	Sublet	0024000	WY	24k Topo Map, Provisional
USGS	Kemmerer Quad Surficial Materials Map	0100000	WY	Regional Geology
USGS	Ogden Land Use And Land Cover Maps	0250000	UT	250k Lulc - Composite (Graphic)
USGS	4130n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Kemmerer	0062500	WY	62k Topo Map
USGS	Ogden	0250000	UT	250k Topo Map
USGS	Wyoming Base 104	0048000	WY	48k Planimetric Map
USGS	Kemmerer	0100000	WY	Blm Surface Minerals Management Status Map

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**

Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**	
First Order Name:	Sedimentary Rock	**Second Order Name:**	Clastic Sedimentary Rock
Third Order Name:	Shale	**Fourth Order Name:**	
Lowest Order Name:	Shale	**Additional Descriptive Text:**	

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06803	

Comments:

Category	Line	Comment
Deposit	1	SAMPLE ANALYZED .26% U OXIDE.
Geology	1	GEOL.DESC: URANIFEROUS SHALE
Location	1	LATITUDE-LONGITUDE VALUES CALCULATED FROM TOWNSHIP, RANGE, SECTION.
Location	2	A.B. Wilson moved location (from where MRDS program calculated based on being in section 21 at NAD 27, 41.95611, -110.58972) to the prospect shown on the Sublet 1985 24k provisional topo at the north edge of Section 21.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES.	
Deposit	2	CONSV. DIV. COMP. DATE, 03-25-1958	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018808
Site Name: Unknown

Printout Date: 28-JAN-2013 02:43 pm

Site Overview:

Record Type: Site
Deposit Type: Stratabound
Development Status: Occurrence
Operation Type: Unknown
Old MRDS #: DC06896
Old MAS #:
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site
Deposit Type: Stratabound
Development Status: Occurrence
Operation Type: Unknown
Plant Type:
Plant Identifier:
Mining Method:
Milling Method:
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Energy
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MRDS migration
Last Deposit Modification: 07-OCT-2012 07:58:23
Last Table Modified: BIB_REFERENCES - Update
Old MRDS #: DC06896
Old MAS #:

Possible Dupes:

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Ogden

Geo-Coordinate Information:

Datum of Entry: WGS 84

Latitude: N-41-49-42 41.82832

Longitude: W-110-58-27 -110.97409

WGS 84 Latitude: 41.82832

WGS 84 Longitude: -110.97409

UTM Zone: 12N **Northing:** 4630715 **Easting:** 502151

Point of Reference: Centroid

Location Accuracy:

Relative Position: Original record had no geographic coordinates; these coordinates were derived from the PLSS description provided.

Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 021N
Range: 119W
Section: 06,07
Fractional Sections:

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Kemmerer Quad Geologic Map	0100000	WY	Regional Geology
USGS	Ogden Land Use And Land Cover Maps	0250000	UT	250k Lulc - Composite (Graphic)
USGS	Ogden Quad Leasable Mineral And Waterpower Land Classification Map	0250000	UT	Mineral Resources
USGS	Sage	0062500	WY	62k Topo Map
USGS	Ogden	0250000	UT	250k Topo Map
USGS	Sage	0024000	WY	24k Topo Map, Provisional
USGS	Kemmerer	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Kemmerer	0100000	WY	100k Topo Map
USGS	Kemmerer Quadrangle, Swelling Clays Map	0100000	WY	Regional Geology
USGS	Wyoming Base 104	0048000	WY	48k Planimetric Map
USGS	4130n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Ogden 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	UT	Regional Geology
USGS	Kemmerer	0100000	WY	Blm Surface Management Status Map
USGS	Kemmerer Quad Surficial Materials Map	0100000	WY	Regional Geology
USGS	Sage Sw	0024000	WY	24k Graphic Oq

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**	
First Order Name:	Sedimentary Rock	**Second Order Name:**	Clastic Sedimentary Rock
Third Order Name:	Shale	**Fourth Order Name:**	
Lowest Order Name:	Shale	**Additional Descriptive Text:**	

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06896	

Comments:

Category	Line	Comment
Deposit	1	AS MUCH AS .013% U IN ASH, WITH SAMPLE AVE. .007% U. 43.06% ASH IN COAL.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018809 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06897 **Old MAS #:**
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site
Deposit Type: Stratabound
Development Status: Occurrence
Operation Type: Unknown
Plant Type:
Plant Identifier:
Mining Method:
Milling Method:
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Energy
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MRDS migration
Last Deposit Modification: 07-OCT-2012 07:58:25
Last Table Modified: BIB_REFERENCES - Update
Old MRDS #: DC06897
Old MAS #:
Possible Dupes: 10254139 (Raymond Canyon Phosphate)

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-42-16-12 42.27
Longitude: W-111-1-23 -111.02306
WGS 84 Latitude: 42.27
WGS 84 Longitude: -111.02306
UTM Zone: **Northing:** **Easting:**
Point of Reference:
Location Accuracy:
Relative Position:
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 026N
Range: 119W
Section: 06

Fractional Sections:

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Geneva	0024000	ID	24k Graphic Oq
USGS	Montpelier	0125000	ID	125k - 30-Minute Map
USGS	Preston	0100000	ID	100k Topo Map
USGS	Preston	0100000	ID	Blm Surface Management Status Map
USGS	Preston	0250000	ID	250k Topo Map
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Geneva Flood Prone Areas	0024000	ID	Flood Prone Areas
USGS	4200n11100w Photogeologic Map	0096000	ID	Energy Resources
USGS	Geneva	0024000	ID	24k Topo Map
USGS	Idaho Base 96	0048000	ID	48k Planimetric Map
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Preston Quadrangle Map	0100000	ID	County Highway Map
USGS	Geneva Wetlands	0024000	ID	National Wetlands Inventory
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Preston	0100000	ID	Blm Surface Minerals Management Status Map
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**			
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment	
Third Order Name:	Phosphorite		**Fourth Order Name:**		
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**		

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**		
Chronological Age:		**Plus/Minus:**		**Method:**		**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06897	

Comments:

Category	Line	Comment
Deposit	1	.037% U OXIDE.

Location	1	LATITUDE-LONGITUDE VALUES CALCULATED FROM TOWNSHIP, RANGE, SECTION.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018811 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06899 **Old MAS #:**
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Plant Type: **Plant Identifier:**
Mining Method: **Milling Method:**
Year of First **Year of Last**

Production:		**Production:**	
Years of Production:			
Year of Discovery:		**Discovery Method:**	
Discoverer:			
Site Commodity Types:	Energy	**Significant:**	N
Mineralized Area Name:		**Location Problem:**	
Record added:	12-MAR-2002 00:00:00	**Added By:**	MRDS migration
Last Deposit Modification:	07-OCT-2012 07:58:27	**Last Table Modified:**	BIB_REFERENCES - Update
Old MRDS #:	DC06899	**Old MAS #:**	
Possible Dupes:			

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry:	WGS 84	
Latitude:	N-42-15-23	42.25628
Longitude:	W-111-2-24	-111.03993
WGS 84 Latitude:	42.25628	
WGS 84 Longitude:	-111.03993	

UTM Zone: 12N **Northing:** 4678232 **Easting:** 496706

Point of Reference: Centroid

Location Accuracy:

Relative Position: Original record had no geographic coordinates; these coordinates were derived from the PLSS description provided.

Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal

Township: 026N

Range: 120W

Section: 02

Fractional Sections:

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Geneva	0024000	ID	24k Graphic Oq
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Preston	0250000	ID	250k Topo Map
USGS	Geneva Wetlands	0024000	ID	National Wetlands Inventory
USGS	Idaho Base 96	0048000	ID	48k Planimetric Map
USGS	Montpelier	0125000	ID	125k - 30-Minute Map
USGS	Preston Quadrangle Map	0100000	ID	County Highway Map
USGS	Geneva Flood Prone Areas	0024000	ID	Flood Prone Areas
USGS	Geneva	0024000	ID	24k Topo Map
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	4200n11100w	0096000	ID	Energy Resources

	Photogeologic Map			
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Preston	0100000	ID	100k Topo Map
USGS	Preston	0100000	ID	Blm Surface Management Status Map
USGS	Preston	0100000	ID	Blm Surface Minerals Management Status Map

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**		
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment
Third Order Name:	Phosphorite		**Fourth Order Name:**	
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**	

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06899	

Comments:

Category	Line	Comment
Deposit	1	.045% U OXIDE

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018812 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06900 **Old MAS #:**
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type:	Site	**Deposit Type:**	Stratabound
Development Status:	Occurrence	**Operation Type:**	Unknown
Plant Type:		**Plant Identifier:**	
Mining Method:		**Milling Method:**	
Year of First Production:		**Year of Last Production:**	
Years of Production:			
Year of Discovery:		**Discovery Method:**	
Discoverer:			
Site Commodity Types:	Energy	**Significant:**	N
Mineralized Area Name:		**Location Problem:**	
Record added:	12-MAR-2002 00:00:00	**Added By:**	MRDS migration
Last Deposit Modification:	07-OCT-2012 07:58:28	**Last Table Modified:**	BIB_REFERENCES - Update
Old MRDS #:	DC06900	**Old MAS #:**	
Possible Dupes:			

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-42-19-18 42.32177
Longitude: W-111-2-24 -111.04001
WGS 84 Latitude: 42.32177
WGS 84 Longitude: -111.04001
UTM Zone: 12N **Northing:** 4685503 **Easting:** 496703
Point of Reference: Centroid
Location Accuracy:
Relative Position: Original record had no geographic coordinates; these coordinates were derived from the PLSS description provided.
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 027N
Range: 120W
Section: 23,24
Fractional Sections:

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Geneva Wetlands	0024000	ID	National Wetlands Inventory
USGS	Montpelier	0125000	ID	125k - 30-Minute Map
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Geneva	0024000	ID	24k Graphic Oq
USGS	Geneva	0024000	ID	24k Topo Map
USGS	Geneva Flood Prone Areas	0024000	ID	Flood Prone Areas
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Preston	0100000	ID	100k Topo Map
USGS	4200n11100w Photogeologic Map	0096000	ID	Energy Resources

USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Preston	0100000	ID	Blm Surface Management Status Map
USGS	Preston	0100000	ID	Blm Surface Minerals Management Status Map
USGS	Preston Quadrangle Map	0100000	ID	County Highway Map
USGS	Idaho Base 96	0048000	ID	48k Planimetric Map
USGS	Preston	0250000	ID	250k Topo Map
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources

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Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**			
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment	
Third Order Name:	Phosphorite		**Fourth Order Name:**		
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**		

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06900	

Comments:

Category	Line	Comment
Deposit	1	.017% U OXIDE.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018813 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06901 **Old MAS #:**

Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site
Development Status: Occurrence
Plant Type:
Mining Method:
Year of First Production:
Years of Production:
Year of Discovery:
Discoverer:
Site Commodity Types: Energy
Mineralized Area Name:
Record added: 12-MAR-2002 00:00:00
Last Deposit Modification: 07-OCT-2012 07:58:29
Old MRDS #: DC06901
Possible Dupes:

Deposit Type: Stratabound
Operation Type: Unknown
Plant Identifier:
Milling Method:
Year of Last Production:
Discovery Method:
Significant: N
Location Problem: Y
Added By: MRDS migration
Last Table Modified: BIB_REFERENCES - Update
Old MAS #:

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Driggs

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-43-17-6 43.285
Longitude: W-110-35-25 -110.59028
WGS 84 Latitude: 43.285
WGS 84 Longitude: -110.59028
UTM Zone: **Northing:** **Easting:**
Point of Reference:
Location Accuracy:
Relative Position:
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 038N
Range: 115W
Section: 01
Fractional Sections:

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Driggs Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Geologic Map Of The Driggs Quadrangle	0250000	ID	Miscellaneous Field Study

USGS	Jackson	0100000	WY	Blm Surface Management Status Map
USGS	Bull Creek Quadrangle	0024000	WY	Geologic Quadrangle
USGS	Bull Creek	0024000	WY	24k Graphic Oq
USGS	Bull Creek	0024000	WY	24k Topo Map
USGS	Driggs Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Driggs Quad, Nw 1/4, Prelim Geologic	0125000	ID	Regional Geology
USGS	Wyoming Base 47	0048000	WY	48k Planimetric Map
USGS	4300n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Jackson	0125000	WY	125k - 30-Minute Map
USGS	Driggs 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Jackson	0100000	WY	100k Topo Map
USGS	Driggs	0250000	ID	250k Topo Map
USGS	Jackson	0100000	WY	Blm Surface Minerals Management Status Map

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Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**		
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment
Third Order Name:	Phosphorite		**Fourth Order Name:**	
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**	

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey
Wilson, Anna B (E)	05-OCT-2012	U.S. Geological Survey

Confirmed that PLSS is outside Lincoln County.

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06901	

Comments:

Category	Line	Comment
Deposit	1	.010% U OXIDE
Location	1	LATITUDE-LONGITUDE VALUES CALCULATED FROM TOWNSHIP, RANGE, SECTION.
Location	2	Sec. 1 in given PLSS is just north (and west) of Lincoln County. Either the PLSS is erroneous or the County is wrong. Unable to verify.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

$$$ PAGE BREAK $$$

New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018814
Site Name: Unknown

Printout Date: 28-JAN-2013 02:43 pm

Site Overview:

Record Type: Site
Deposit Type: Stratabound
Development Status: Occurrence
Operation Type: Unknown
Old MRDS #: DC06902
Old MAS #:
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site
Deposit Type: Stratabound
Development Status: Occurrence
Operation Type: Unknown
Plant Type:
Plant Identifier:
Mining Method:
Milling Method:
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Energy
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MRDS migration
Last Deposit Modification: 07-OCT-2012 07:58:30
Last Table Modified: BIB_REFERENCES - Update
Old MRDS #: DC06902
Old MAS #:
Possible Dupes:

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: WGS 84

Latitude: N-42-7-22 42.12291

Longitude: W-110-49-25 -110.82357

WGS 84 Latitude: 42.12291

WGS 84 Longitude: -110.82357

UTM Zone: 12N **Northing:** 4663437 **Easting:** 514583

Point of Reference: Centroid

Location Accuracy:

Relative Position: Original record had no geographic coordinates; these coordinates were derived from the PLSS description provided.

Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal

Township: 025N

Range: 118W

Section: 26,35

Fractional Sections:

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	4200n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Geologic Map And Structure Sections Of The Cokeville 30 Minute Quadrangle	0062500	WY	Misc Geologic Investigation
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Sublette Canyon	0024000	WY	24k Graphic Oq
USGS	Sublette Canyon	0024000	WY	24k Topo Map
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Cokeville	0125000	WY	125k - 30-Minute Map
USGS	Preston	0250000	ID	250k Topo Map
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Wyoming Base 77	0048000	WY	48k Planimetric Map
USGS	Fontenelle Reservoir	0100000	WY	100k Topo Map
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Management Status Map
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources

---

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**

Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**			
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment	
Third Order Name:	Phosphorite		**Fourth Order Name:**		
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**		

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06902	

Comments:

Category	Line	Comment
Deposit	1	.010% U OXIDE

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

$$$ PAGE BREAK $$$

New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018816
Site Name: Unknown

Printout Date: 28-JAN-2013 02:43 pm

Site Overview:

Record Type: Site
Deposit Type: Stratabound
Development Status: Occurrence
Operation Type: Unknown
Old MRDS #: DC06904
Old MAS #:
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site
Deposit Type: Stratabound
Development Status: Occurrence
Operation Type: Unknown
Plant Type:
Plant Identifier:
Mining Method:
Milling Method:
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Energy
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MRDS migration
Last Deposit Modification: 07-OCT-2012 07:58:32
Last Table Modified: BIB_REFERENCES - Update
Old MRDS #: DC06904
Old MAS #:

Possible Dupes:

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Ogden

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-41-36-46 41.61278
Longitude: W-110-34-5 -110.56806
WGS 84 Latitude: 41.61278
WGS 84 Longitude: -110.56806
UTM Zone: **Northing:** **Easting:**
Point of Reference:
Location Accuracy:
Relative Position:
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 019N

Range: 116W
Section: 19
Fractional Sections:

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Kemmerer	0100000	WY	100k Topo Map
USGS	Kemmerer Quad Surficial Materials Map	0100000	WY	Regional Geology
USGS	Ogden	0250000	UT	250k Topo Map
USGS	Ogden 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	UT	Regional Geology
USGS	Wyoming Base 104	0048000	WY	48k Planimetric Map
USGS	Cumberland Gap Flood Prone Areas	0024000	WY	Flood Prone Areas
USGS	Kemmerer Quad Geologic Map	0100000	WY	Regional Geology
USGS	Kemmerer Quadrangle, Swelling Clays Map	0100000	WY	Regional Geology
USGS	Ogden Quad Leasable Mineral And Waterpower Land Classification Map	0250000	UT	Mineral Resources
USGS	Cumberland Gap Quad Prelim Geologic	0024000	WY	Energy Resources
USGS	Kemmerer	0100000	WY	Blm Surface Management Status Map
USGS	4130n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Cumberland Gap	0024000	WY	24k Graphic Oq
USGS	Cumberland Gap	0024000	WY	24k Topo Map
USGS	Kemmerer	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Ogden Land Use And Land Cover Maps	0250000	UT	250k Lulc - Composite (Graphic)
	Cumberland Gap Quad Coal			

USGS	Occurrence And Development Potential Maps	0024000	WY	Energy Resources

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**		
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment
Third Order Name:	Phosphorite		**Fourth Order Name:**	
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**	

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06904	

Comments:

Category	Line	Comment
Deposit	1	.038% U OXIDE
Location	1	LATITUDE-LONGITUDE VALUES CALCULATED FROM TOWNSHIP, RANGE, SECTION.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

$$$ PAGE BREAK $$$

New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018817 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06905 **Old MAS #:**
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site **Deposit Type:** Stratabound

Development Status:	Occurrence	**Operation Type:**	Unknown
Plant Type:		**Plant Identifier:**	
Mining Method:		**Milling Method:**	
Year of First Production:		**Year of Last Production:**	
Years of Production:			
Year of Discovery:		**Discovery Method:**	
Discoverer:			
Site Commodity Types:	Energy	**Significant:**	N
Mineralized Area Name:		**Location Problem:**	
Record added:	12-MAR-2002 00:00:00	**Added By:**	MRDS migration
Last Deposit Modification:	07-OCT-2012 07:58:33	**Last Table Modified:**	BIB_REFERENCES - Update
Old MRDS #:	DC06905	**Old MAS #:**	
Possible Dupes:			

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry:	WGS 84	
Latitude:	N-42-34-16	42.57111
Longitude:	W-110-43-54	-110.73167
WGS 84 Latitude:	42.57111	

WGS 84 Longitude: -110.73167
UTM Zone: **Northing:** **Easting:**
Point of Reference:
Location Accuracy:
Relative Position:
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 030N
Range: 117W
Section: 23
Fractional Sections:

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Wyoming Base 74	0048000	WY	48k Planimetric Map
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Afton	0125000	WY	125k - 30-Minute Map
USGS	Afton	0100000	WY	Blm Surface Management Status Map
USGS	4230n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Poison Meadows	0024000	WY	24k Topo Map
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
	Preston Quad Leasable			

USGS	Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Afton Quad And Part Of The Big Piney Quad Geologic Map	0062500	WY	Regional Geology
USGS	Afton	0100000	WY	100k Topo Map
USGS	Afton	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Preston	0250000	ID	250k Topo Map
USGS	Wyoming Peak Sw	0024000	WY	24k Graphic Oq

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**			
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment	
Third Order Name:	Phosphorite		**Fourth Order Name:**		
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**		

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation

Conservation Division Files (R) 01-MAR-1974 U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06905	

Comments:

Category	Line	Comment
Deposit	1	.012% U OXIDE
Location	1	LATITUDE-LONGITUDE VALUES CALCULATED FROM TOWNSHIP, RANGE, SECTION.
Location	2	Unverifiable record.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

$$$ PAGE BREAK $$$

New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018818 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06906 **Old MAS #:**
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type:	Site	**Deposit Type:**	Stratabound
Development Status:	Occurrence	**Operation Type:**	Unknown
Plant Type:		**Plant Identifier:**	
Mining Method:		**Milling Method:**	
Year of First Production:		**Year of Last Production:**	
Years of Production:			
Year of Discovery:		**Discovery Method:**	
Discoverer:			
Site Commodity Types:	Energy	**Significant:**	N
Mineralized Area Name:		**Location Problem:**	
Record added:	12-MAR-2002 00:00:00	**Added By:**	MRDS migration
Last Deposit Modification:	07-OCT-2012 07:58:34	**Last Table Modified:**	BIB_REFERENCES - Update
Old MRDS #:	DC06906	**Old MAS #:**	
Possible Dupes:			

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Driggs

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-43-6-21 43.10579
Longitude: W-110-41-48 -110.69662
WGS 84 Latitude: 43.10579
WGS 84 Longitude: -110.69662
UTM Zone: 12N **Northing:** 4772607 **Easting:** 524685
Point of Reference: Centroid
Location Accuracy:
Relative Position: Original record had no geographic coordinates; these coordinates were derived from the PLSS description provided.
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 036N
Range: 116W
Section: 09,10
Fractional Sections:

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Driggs Quad, Nw 1/4, Prelim Geologic	0125000	ID	Regional Geology
USGS	Pickle Pass	0024000	WY	24k Topo Map
USGS	Driggs	0250000	ID	250k Topo Map
USGS	Driggs 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Jackson	0100000	WY	100k Topo Map

USGS	Pickle Pass Quadrangle, Preliminary Geologic Map	0024000	WY	Regional Geology
USGS	4300n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Driggs Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Driggs Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Geologic Map Of The Driggs Quadrangle	0250000	ID	Miscellaneous Field Study
USGS	Jackson	0100000	WY	Blm Surface Management Status Map
USGS	Jackson	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Jackson	0125000	WY	125k - 30-Minute Map
USGS	Wyoming Base 47	0048000	WY	48k Planimetric Map
USGS	Pickle Pass	0024000	WY	24k Graphic Oq

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**			
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment	
Third Order Name:	Phosphorite		**Fourth Order Name:**		
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**		

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06906	

Comments:

Category	Line	Comment
Deposit	1	.016% U OXIDE

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018819 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound

Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06907 **Old MAS #:**
Validated: Y

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site
Deposit Type: Stratabound
Development Status: Occurrence
Operation Type: Unknown
Plant Type:
Plant Identifier:
Mining Method:
Milling Method:
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Energy
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MRDS migration
Last Deposit Modification: 07-OCT-2012 08:11:35
Last Table Modified: BIB_REFERENCES - Update
Old MRDS #: DC06907
Old MAS #:
Possible Dupes:

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Ogden

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-41-36-47 41.613
Longitude: W-110-41-1 -110.68368
WGS 84 Latitude: 41.613
WGS 84 Longitude: -110.68368
UTM Zone: 12N **Northing:** 4606857 **Easting:** 526355
Point of Reference: Main Entrance
Location Accuracy: 100
Relative Position: Prospect on topo, east of center of sec. 19. Scar visible on Google Earth Imagery.
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 019N
Range: 117W
Section: 19
Fractional Sections:

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Kemmerer	0100000	WY	Blm Surface Management Status Map
USGS	Kemmerer Quad Surficial Materials Map	0100000	WY	Regional Geology
USGS	Ogden Land Use And Land Cover Maps	0250000	UT	250k Lulc - Composite (Graphic)
USGS	Elkol Sw	0024000	WY	24k Graphic Oq
USGS	Elkol Sw Flood Prone Areas	0024000	WY	Flood Prone Areas
USGS	Wyoming Base 104	0048000	WY	48k Planimetric Map
USGS	Elkol Sw Quad Coal Occurrence And Development Potential Maps	0024000	WY	Energy Resources
USGS	Elkol Sw Quad Geologic And Coal Sections Map	0024000	WY	Energy Resources
USGS	Kemmerer Quad Geologic Map	0100000	WY	Regional Geology
USGS	Ogden	0250000	UT	250k Topo Map
USGS	Elkol Sw	0024000	WY	24k Topo Map
USGS	Kemmerer	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Ogden Quad Leasable Mineral And Waterpower Land Classification Map	0250000	UT	Mineral Resources
USGS	Ogden 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	UT	Regional Geology
USGS	4130n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Kemmerer	0100000	WY	100k Topo Map
USGS	Kemmerer Quadrangle, Swelling Clays Map	0100000	WY	Regional Geology

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Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**			
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment	
Third Order Name:	Phosphorite		**Fourth Order Name:**		
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**		

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**		
Chronological Age:		**Plus/Minus:**		**Method:**		**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey
Wilson, Anna B. (E)	07-JUN-2011	U.S. Geological Survey

Updated based on topo and imagery.

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06907	

Comments:

Category	Line	Comment
Deposit	1	.038% U OXIDE
Location	1	LATITUDE-LONGITUDE VALUES were CALCULATED FROM TOWNSHIP, RANGE, SECTION. ABW moved approx. 365 m NE from -110.684, 41.613 to -110.681, 41.615 (at "Prospect" shown on topo E of center of Sec. 19).

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	
Location	1	24,000 topo map and Google Imagery (as of June, 2011)	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018820 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06908 **Old MAS #:**
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Plant Type: **Plant Identifier:**
Mining Method: **Milling Method:**
Year of First Production: **Year of Last Production:**
Years of Production:
Year of Discovery: **Discovery Method:**
Discoverer:
Site Commodity Types: Energy **Significant:** N
Mineralized Area Name: **Location Problem:**
Record added: 12-MAR-2002 00:00:00 **Added By:** MRDS migration
Last Deposit 07-OCT-2012 BIB_REFERENCES -

Modification: 07:58:35 **Last Table Modified:** Update
Old MRDS #: DC06908 **Old MAS #:**
Possible Dupes:

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Driggs

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-43-6-23 43.10639
Longitude: W-110-41-41 -110.69472
WGS 84 Latitude: 43.10639
WGS 84 Longitude: -110.69472
UTM Zone: **Northing:** **Easting:**
Point of Reference:
Location Accuracy:
Relative Position:
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 036N
Range: 116W
Section: 09
Fractional Sections:

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Driggs Quad, Nw 1/4, Prelim Geologic	0125000	ID	Regional Geology
USGS	4300n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Driggs	0250000	ID	250k Topo Map
USGS	Driggs 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Driggs Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Geologic Map Of The Driggs Quadrangle	0250000	ID	Miscellaneous Field Study
USGS	Jackson	0100000	WY	Blm Surface Management Status Map
USGS	Jackson	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Pickle Pass	0024000	WY	24k Topo Map
USGS	Wyoming Base 47	0048000	WY	48k Planimetric Map
USGS	Driggs Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Jackson	0100000	WY	100k Topo Map
USGS	Jackson	0125000	WY	125k - 30-Minute Map
USGS	Pickle Pass	0024000	WY	24k Graphic Oq
USGS	Pickle Pass Quadrangle, Preliminary Geologic Map	0024000	WY	Regional Geology

---

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**

Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**		
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment
Third Order Name:	Phosphorite		**Fourth Order Name:**	
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**	

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06908	

Comments:

Category	Line	Comment
Deposit	1	.016% U OXIDE
Location	1	LATITUDE-LONGITUDE VALUES CALCULATED FROM TOWNSHIP, RANGE, SECTION.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10018821 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Unknown

Site Overview:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Old MRDS #: DC06909 **Old MAS #:**
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site **Deposit Type:** Stratabound
Development Status: Occurrence **Operation Type:** Unknown
Plant Type: **Plant Identifier:**
Mining Method: **Milling Method:**
Year of First Production: **Year of Last Production:**
Years of Production:
Year of Discovery: **Discovery Method:**

Discoverer:
Site Commodity Types: Energy
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MRDS migration
Last Deposit Modification: 07-OCT-2012 07:58:37
Last Table Modified: BIB_REFERENCES - Update
Old MRDS #: DC06909
Old MAS #:
Possible Dupes:

Name Information:

Name	Status
Unknown	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-42-6-31 42.10861
Longitude: W-110-58-54 -110.98167
WGS 84 Latitude: 42.10861
WGS 84 Longitude: -110.98167
UTM Zone: **Northing:** **Easting:**
Point of Reference:
Location Accuracy:
Relative Position:
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 025N
Range: 119W
Section: 33
Fractional Sections:

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Geologic Map And Structure Sections Of The Cokeville 30 Minute Quadrangle	0062500	WY	Misc Geologic Investigation
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Fontenelle Reservoir	0100000	WY	100k Topo Map
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Cokeville	0024000	WY	24k Graphic Oq
USGS	Cokeville	0024000	WY	24k Topo Map
USGS	Preston	0250000	ID	250k Topo Map
USGS	4200n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Cokeville	0125000	WY	125k - 30-Minute Map
USGS	Cokeville Flood Prone Areas	0024000	WY	Flood Prone Areas
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Management Status

				Map
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Wyoming Base 77	0048000	WY	48k Planimetric Map

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Rock Information:

Rock Type:	Host	**Rock Unit Name:**			
First Order Name:	Sedimentary Rock		**Second Order Name:**	Chemical Sediment	
Third Order Name:	Phosphorite		**Fourth Order Name:**		
Lowest Order Name:	Phosphorite		**Additional Descriptive Text:**		

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Conservation Division Files (R)	01-MAR-1974	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	DC06909	

Comments:

Category	Line	Comment
Deposit	1	.028% U OXIDE
Location	1	LATITUDE-LONGITUDE VALUES CALCULATED FROM TOWNSHIP, RANGE, SECTION.
Location	2	Unable to confirm anything about this deposit, supposedly in Sec. 33 (according to the original MRDS record). Coordinates place this in Sec. 31. Sec. 33 is more than 3500 meters east of this point. Probably belongs at Rocky Point. Wyoming Map Series 14, places a U deposit where the Phosphate is, but classifies the deposit as Marine Phosphate in Phosphoria Formation. Therefore, ABW moved the point to the same location as the Rocky Point Phosphate deposit (#10181986).

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	USGS FILES	
Location	1	Harris, R.E., Hausel, W.D., and Meyer, J.E., 1985, Metallic and industrial minerals map of Wyoming: Wyoming Geological Survey Map Series 14, scale 1:500,000.	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10096579 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Fontenelle Creek Prospect

Site Overview:

Record Type: Site **Deposit Type:**
Development Status: Occurrence **Operation Type:** Unknown

Old MRDS #: W032224 **Old MAS #:**
Validated: Y

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Phosphorus-Phosphates - (P), Uranium - (U)

General Site Information:

Record Type: Site
Deposit Type:
Development Status: Occurrence
Operation Type: Unknown
Plant Type:
Plant Identifier:
Mining Method:
Milling Method:
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Non-metallic
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MRDS migration
Last Deposit Modification: 09-OCT-2012 10:03:00
Last Table Modified: MODEL_TYPE - Delete
Old MRDS #: W032224
Old MAS #:
Possible Dupes:

Name Information:

Name	Status
Fontenelle Creek Prospect	Current
Section 108 In Sheldon	Previous
1963	Previous

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Phosphorus-Phosphates -	Non-	Primary				

(P)	metallic	
Uranium - (U)	Energy	Primary

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-42-17-2 42.28389
Longitude: W-110-34-12 -110.57
WGS 84 Latitude: 42.28389
WGS 84 Longitude: -110.57
UTM Zone: **Northing:** **Easting:**
Point of Reference: Approximate
Location Accuracy: 1000
Relative Position: In sec. 35.
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 027N
Range: 116W
Section: 35
Fractional Sections:

Mining Districts:

Line	District Name
1	Hams Fork Coal Region

Drainage Basin:

HUC	Drainage Name	Unit Type	Area Sq. Mi.
14040101	Upper Green	Cataloging Unit	2930

Land Status Information:

Line	Land Status	Administrative Area
1	National Forest	Bridger National Forest

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Fontenelle Reservoir	0100000	WY	100k Topo Map
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Geologic Map And Structure Sections Of The Cokeville 30 Minute Quadrangle	0062500	WY	Misc Geologic Investigation
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	4200n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Preston	0250000	ID	250k Topo Map
USGS	Cokeville	0125000	WY	125k - 30-Minute Map
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Wyoming Base 77	0048000	WY	48k Planimetric Map

USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Coal Creek	0024000	WY	24k Graphic Oq
USGS	Coal Creek	0024000	WY	24k Topo Map
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Management Status Map

Orebody Information:

Orebody Name:
Form: BLANKET
Area: **Length:** **Width:**
Depth to Top: **Depth to Bottom:** **Thickness:** 4.66 M
Strike: N15W **Dip:** 55 SW **Plunge:**
MAS Matrix:

Rock Information:

Rock Type: Host **Rock Unit Name:** Dinwoody;Phosphoria;Park City
First Order Name: Sedimentary Rock **Second Order Name:** Chemical Sediment
Third Order Name: Phosphorite **Fourth Order Name:**
Lowest Order Name: Phosphorite **Additional Descriptive Text:**

Rock Age:

Age Type: Host Rock **Youngest Age:** Late Permian **Oldest Age:**
Chronological Age: **Plus/Minus:** **Method:** **Media:**

Age of Mineralization:

Age Type: Mineralization **Youngest Age:** Late Permian **Oldest Age:**
Chronological Age: **Plus/Minus:** **Method:** **Media:**

Geologic Structure:

Structure Type	Structure	Original Entry
R		Northerly Trending Absaroka Fault And 1 Mile West Of Lazeart Syncli Ne

Tectonic Setting:

Tectonic Setting	Original Entry
	Overthrust Belt

Concentration Process:

Concentration Process	Original Entry
	Chemical Precipitation

Reporters:

Reporter	Report Date	Affiliation
Suekawa, Harry S. (Barari, Rachel A.) (R)	01-DEC-1977	U.S. Geological Survey
Wilson, Anna B. (E)	25-JUN-2010	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MRDS	Mineral Resources Data System	USGS	W032224	

Comments:

Category	Line	Comment
Commodity	1	P205 CONTENT RANGES FROM .2 TO 34.3%. EU CONTENT FROM 0.001 TO 0.0 14%
Deposit	1	SECTION MEASURED AS FOLLOWS: DINWOODY FORMATION, 33.2 FT.; RETORT PHOSPHATIC SHALE MEMBER OF THE PHOSPHORIA FORMATION, 28.3 FT.; FRANSON TONGUE OF THE PARK CITY FORMATION, 110.2; REX MEMBER OF THE PHOSPHORIA FORMATION, 27.7 FT.; MEADE PEAK PHOSPHATIC SHALE MEMBER OF THE PHOSPHORIA FORMATION, 73.9 FT.; GRANDEUR TONGUE OF THE PARK CITY

		FORMATION, 51.7 FT. ; INFO.SRC : 1 PUB LIT; 2 UNPUB REPT
General	1	1952 DIREXPL SHELDON, 15.3 FT OF 20.2% P20
Location	1	SOUTH SIDE OF FONTENELLE CREEK, LOT 1379; 3 MILES E-NE OF INDIAN MOUNTAIN
Workings	1	SURFACE PROSPECT, SAMPLES FROM TWO BULLDOZER TRENCHES, A HAND TRENCH, AND A NATURAL OUTCROP.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	KIVI, W. J., 1940, THE STRATIGRAPHY OF THE PHOSPHORIA FORMATION OF WESTERN WYOMING WITH NOTES ON THE OCCURRENCE OF PHOSPHATE. UNIVERSITY OF WYOMING UNPUBLISHED M.A. THESIS	
Deposit	2	Sheldon, 1963, USGS PP 313-B, pl. 6; table 1, #108, p. 55; p. 245-250.	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10133238 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Leefe Mine

Site Overview:

Record Type: Deposit **Deposit Type:**
Development Status: Past Producer **Operation Type:** Surface-Underground
Old MRDS #: W031617 **Old MAS #:** 0560230035
Validated:

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Phosphorus-Phosphates - (P)

General Site Information:

Record Type:	Deposit	**Deposit Type:**	
Development Status:	Past Producer	**Operation Type:**	Surface-Underground
Plant Type:		**Plant Identifier:**	
Mining Method:	Open Pit	**Milling Method:**	Washing
Year of First Production:	1908	**Year of Last Production:**	1978
Years of Production:			
Year of Discovery:	1905	**Discovery Method:**	
Discoverer:			
Site Commodity Types:	Non-metallic	**Significant:**	Y
Mineralized Area Name:		**Location Problem:**	
Record added:	12-MAR-2002 00:00:00	**Added By:**	MAS migration
Last Deposit Modification:	13-MAY-2012 07:19:30	**Last Table Modified:**	COMMENTS - Update
Old MRDS #:	W031617	**Old MAS #:**	0560230035
Possible Dupes:			

Name Information:

Name	Status
Leefe Mine	Current
Leefe Operations	Previous
Beckwith Hills	Previous
San Francisco Chemical Company	Contains
San Francisco Chemical Company #1	Contains
San Francisco Chemical Company #2	Contains
San Francisco Chemical Company #3	Contains
San Francisco Chemical Company #4	Contains
San Francisco Chemical Company #5	Contains
North 40 Pit	Contains
St. George Mine Area Reclamation	Contains
North Forty Mine Area Reclamation	Contains
SMC site	Contains

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Phosphorus-Phosphates - (P)	Non-metallic	Primary				

Uranium - (U) Energy Tertiary

Ownership Information:

Owner Name: Stauffer Chemical Co.
Ownership Type: Owner
Pct:
Year of Information: 1979
Beginning Year:
Ending Year:
Company ID:
Home Office Location: Connecticut

Owner Name: U.S. Government
Ownership Type: Owner
Pct:
Year of Information: 1979
Beginning Year:
Ending Year:
Company ID:
Home Office Location: Dist Of Columbia

Owner Name: Stauffer Chemical Co.
Ownership Type: Operator
Pct:
Year of Information:
Beginning Year:
Ending Year:
Company ID:
Home Office Location:

Owner Name: Stauffer Chemical Co.
Ownership Type: Owner
Pct:
Year of Information:
Beginning Year: 1980
Ending Year:
Company ID:
Home Office Location: Star Route, Randolph, UT 84064

Owner Name: San Francisco Chemical Company
Ownership Type: Operator
Pct:
Year of Information: 1966
Beginning Year:
Ending Year:
Company ID:
Home Office Location:

Type of Mineral Holdings:

Line	Holding Type
1	Patented
2	Federal Lease

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Ogden

Geo-Coordinate Information:

Datum of Entry: NAD27
Latitude: N-41-48-38 41.81056
Longitude: W-111-1-19 -111.02194
WGS 84 Latitude: 41.81056
WGS 84 Longitude: -111.02194
UTM Zone: 12N **Northing:** 4628530 **Easting:** 498177
Point of Reference: Ore Body
Location Accuracy: 5000
Relative Position: 25 MILES WEST OF KEMMERER, WYOMING ON HIGHWAY 30 N. Deposit extends at least 4 mi. along NNE trend., Within 2 mi.
Elevation:

Datum of Entry: NAD27
Latitude: N-41-48-31 41.80861
Longitude: W-111-1-47 -111.02972
WGS 84 Latitude: 41.80861
WGS 84 Longitude: -111.02972
UTM Zone: 12N **Northing:** 4628313 **Easting:** 497531
Point of Reference: Main Entrance
Location Accuracy:
Relative Position: San Francisco Chemical Company #1, 10303674 (MAS 0560230119)
Elevation: 1920m

Datum of Entry: NAD27
Latitude: N-41-48-15 41.80417
Longitude: W-111-1-42 -111.02833
WGS 84 Latitude: 41.80417
WGS 84 Longitude: -111.02833
UTM Zone: 12N **Northing:** 4627820 **Easting:** 497646

Point of Reference:
Location Accuracy:
Relative Position: San Francisco Chemical Company #2, 10206215 (MAS 0560230120)
Elevation:

Datum of Entry: NAD27
Latitude: N-41-49-53 41.83139
Longitude: W-111-0-45 -111.0125
WGS 84 Latitude: 41.83139
WGS 84 Longitude: -111.0125
UTM Zone: 12N **Northing:** 4630842 **Easting:** 498962
Point of Reference:
Location Accuracy:
Relative Position: San Francisco Chemical Company #3, 10133085 (MAS 0560230121)
Elevation: 1951m

Datum of Entry: NAD27
Latitude: N-41-50-42 41.845
Longitude: W-111-0-41 -111.01139
WGS 84 Latitude: 41.845
WGS 84 Longitude: -111.01139
UTM Zone: 12N **Northing:** 4632353 **Easting:** 499054
Point of Reference:
Location Accuracy:
Relative Position: San Francisco Chemical Company #1, 10303095 (MAS 0560230123)
Elevation: 1963m

Datum of Entry: NAD27
Latitude: N-41-49-43 41.82861
Longitude: W-111-0-43 -111.01194
WGS 84 Latitude: 41.82861
WGS 84 Longitude: -111.01194
UTM Zone: 12N **Northing:** 4630534 **Easting:** 499008
Point of Reference:
Location

Accuracy:
Relative Position: North 40 Pit from 10278624 (MAS 0560230013)
Elevation:

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 021 N
Range: 120 W
Section: 2, 3, 10, 15
Fractional Sections:

Mining Districts:

Line	District Name
1	Western Phosphate

Land Status Information:

Line	Land Status	Administrative Area
1	Mixed	

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	4130n11100w Photogeologic Map	0096000	UT	Energy Resources
USGS	Ogden Quad Leasable Mineral And Waterpower Land Classification Map	0250000	UT	Mineral Resources

USGS	Leefe	0024000	WY	24k Graphic Oq
USGS	Leefe Wetlands	0024000	WY	National Wetlands Inventory
USGS	Logan	0100000	UT	100k Topo Map
USGS	Ogden Land Use And Land Cover Maps	0250000	UT	250k Lulc - Composite (Graphic)
USGS	Ogden 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	UT	Regional Geology
USGS	Leefe	0024000	WY	24k Topo Map
USGS	Logan Quad Geologic And Structure Sections Map	0100000	UT	Regional Geology
USGS	Logan	0100000	UT	Blm Surface Management Status Map
USGS	Logan	0100000	UT	Blm Surface Minerals Management Status Map
USGS	Ogden	0250000	UT	250k Topo Map
USGS	Utah Base 1	0048000	UT	48k Planimetric Map
USGS	Logan Quad Landslide Deposits Map	0100000	UT	Regional Geology
USGS	Leefe Flood Prone Areas	0024000	WY	Flood Prone Areas
USGS	Randolph	0125000	UT	125k - 30-Minute Map

Model Type:

USGS Number: 34c **BC Number:** F07 **MK3 Number:**
Model Name: Phosphate, upwelling type

Orebody Information:

Orebody Name: [from 10106207 (W031617)]
Form:
Area: **Length:** 50000 M **Width:** 6000 M
Depth to Top: 1000 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 6
MAS Column # : 1
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY

Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 30
Avg. Thick. Unconsol. Mat. : 100
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 961106

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 30000 M
Depth to Top: 2300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 7
MAS Column # : 1
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 1524
Avg. Thick. Unconsol. Mat. : 300
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 961106

Orebody Name:
Form:
Area: **Length:** **Width:**
Depth to Top: **Depth to Bottom:** **Thickness:** 5.82 M
Strike: **Dip:** **Plunge:**
MAS Matrix:

Rock Information:

Rock Type:	Host	**Rock Unit Name:**	Phosphoria Formation		
First Order Name:	Sedimentary Rock		**Second Order Name:**	Clastic Sedimentary Rock	
Third Order Name:	Shale		**Fourth Order Name:**		
Lowest Order Name:	Shale		**Additional Descriptive Text:**		

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Late Permian	**Oldest Age:**	Late Permian	
Chronological Age:		**Plus/Minus:**		**Method:**		**Media:**

Age of Mineralization:

Age Type:	Mineralization	**Youngest Age:**	Late Permian	**Oldest Age:**	Late Permian
Chronological Age:		**Plus/Minus:**		**Method:**	**Media:**

Reporters:

Reporter	Report Date	Affiliation
Td/Pb/Ms (R)	06-NOV-1996	U.S. Bureau of Mines
Barari, Rachel A. (R)	01-JAN-1982	U.S. Geological Survey
Wilson, Anna B. (E)	11-MAR-2009	U.S. Geological Survey
Causey, J. Douglas (U)	15-DEC-2010	U.S. Geological Survey

Added Model.

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230035	
MRDS	Mineral Resources Data System	USGS	W031617	=newMRDS 10106207, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230119	=newMRDS 10303674, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230120	=newMRDS 10206215, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230121	=newMRDS 10133085, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230122	=newMRDS 10157791, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230123	=newMRDS 10303095, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230013	=newMRDS 10278624, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230016	=newMRDS 10135404, merged and deleted.

Comments:

Category	Line	Comment
Deposit	1	THIS MINERALS AVAILABILITY SYSTEM EVALUATION WAS DONE AS PART OF A 1980 STUDY OF UTAH AND WYOMING PHOSPHATE DEPOSITS BY THE INTERMOUNTAIN FIELD OPERATIONS CENTER, DENVER, COLORADO. DOMAIN - THE EXACT PERCENTAGES OF THE OUTCROP IN EACH DOMAIN CATEGORY ARE

		NOT KNOWN, BUT THE RELATIVE AMOUNTS OF LAND IN EACH CATEGORY ARE KNOWN. THEY ARE, IN DESCENDING ORDER, PRIVATE LAND (PATENTED CLAIMS), FEDERAL LAND ADMINISTERED BY THE U.S. BUREAU OF LAND MANAGEMENT, AND STATE OF WYOMING LAND.
Deposit	2	MINING MAGAZINE REMOVED LEEFE FROM ITS MAJOR MINE LIST FOR 1982.
Deposit	3	THICKNESS DIVDIED AMONG 4 BEDS; 6, 5, 6.3, AND 1.8 FEET RESPECTIVELY.
Deposit	4	"MESA MET-NONMET MINE FILE REF OWN/OP STAUFFER CHEMICAL C" is complete reference for "ROTH 40 PIT" at NAD 27, N41-49-43, W111-0-43 (no PLSS given). No other information for old MAS 0560230013 in newMRDS 10278624.
Deposit	5	Leefe Mine 10135404 (MAS 0560230046) appears to have been incorrectly coded as Beryllium. There is no mention of any Be in this region. Original location was given as N-42-50-1 W-110-53-0. Appears to be erroneous also. The only information about this site is USBM PROD TABS OWNER-OP-STAUFFER CHEMICAL. The only references are EMJ INT DIRECTORY OF MINIng [incomplete reference] and Osterwald and others, 1966, Mineral Resources of Wyoming: Geological Survey of Wyoming Bull. 50 [revised ed.], p. 144-145.
Development	1	PHOSPHATE PROCESSING PLANT ACTIVE (1980)
General	1	Wilson and Heran (USGS) visited this site on 6-aug-2010. The site has long been abandoned and reclaimed. All the open pits and dumps have been graded and revegetated (with various degrees of success). Some of the more "major" roads shown on the topo are accessible, most are not. Decades old notices of reclamation projects are posted at the southern end (St. George Mine Area Reclamation) and north of Twin Creek (North Forty Mine Area Reclamation).
General	2	May duplicate 10106207, Leefe Operatons (old MRDS # W031617), but that record gives first production year as 1947, lists Stauffer Chmeical as the owner beginning in 1980, and suggests that the ore body is only 5.82 m thick.
Geology	1	THE PHOSPHORIA FORMATION IS SUBDIVIDED INTO FIVE MEMBERS BY MCKELVEY (Rubey and others, 1975), TWO OF WHICH (THE MEADE PEAK AND RETORT MEMBERS) CONTAIN SIGNIFICANT PHOSPHATE DEPOSITS. IN UTAH AND SOUTHWESTERN WYOMING, THE MEADE PEAK MEMBER, AND IN CENTRAL AND NORTHWESTERN WYOMING, THE RETORT MEMBER CONTAIN THE DEPOSITS OF POTENTIAL INTEREST. THE PARK CITY FORMATION OF UTAH AND CENTRAL WYOMING AND THE SHEDHORN SANDSTONE OF NORTHWESTERN WYOMING ARE STRATIGRAPHIC EQUIVALENTS OF AND INTERTONGUE WITH THE PHOSPHORIA FORMATION. THE PHOSPHORIA FORMATION AND EQUIVALENT FORMATIONS ARE UNDERLAIN BY EITHER THE TENSLEEP SANDSTONE, WEBER QUARTZITE, WELLS FORMATION, OR DIAMOND CREEK SANDSTONE AND ARE OVERLAIN BY EITHER THE WOODSIDE OR DINWOODY FORMATIONS.
Identification	1	"ROTH 40 PIT" (Dee deposit comment 4) appears to be a typo. Probably meant "North 40 Pit"
Location	1	AT LEEFE, WYOMING
Location	2	San Francisco Chemical Company #1: 21N, 120W, Sec. 10, SWSE. San Francisco Chemical Company #2: 21N, 120W, Sec. 15, NWNE. San Francisco Chemical Company #3: 21N, 120W, Sec. 02, E2NW. San Francisco Chemical Company #4: 22N, 120W. Also in 21N, R120W. San Francisco Chemical Company #5: 22N, 120W.

Ownership	1	NO PERCENTAGE OWNERSHIP FIGURES ARE GIVEN BECAUSE THE EXACT FIGURES ARE NOT KNOWN. THE PHOSPHATE DEPOSITS ARE MAINLY LOCATED ON PATENTED CLAIMS CONTROLLED BY THE STAUFFER CHEMICAL COMPANY. IN ADDITION, STAUFFER HOLDS ONE ACTIVE FEDERAL PHOSPHATE LEASE. PART OF THE RE- MAINING OUTCROP IS SUBJECT TO SPECIAL RESTRICTIONS TO PHOSPHATE LEASING BY BLM MANAGEMENT POLICY, AND PART IS OPEN TO FEDERAL LEASING. THERE IS ALSO A SMALL AMOUNT OF OUTCROP ON STATE OF WYOMING LAND THAT IS PRESUMABLY OPEN TO STATE LEASING.
Ownership	2	Ownership Records 3 and 4 are from merged and delted record 10106207 (W031617).
Production	1	Former Leefe Operations 10106207 (W031617) says the first year of production was 1947. [cited in Osterwald and others, Bull. 50, p. 144].
Reserve-Resource	1	OTHER NAME:LEEFE MINE. ADDED TO EVALUATION BY IFOC ON 9/4/80, BUT NEVER INCLUDED IN THE EVALUATION.
Workings	1	ABBREVIATION FOR MINING DISTRICT: WEST. PHOSPHATE = WESTERN PHOSPHATE FIELD.
Workings	2	WYOMING MAP, 1979, SHOWS STRIPPING OPERATIONS ABANDONED.
Workings	3	5 subsites for San Francisco Chemical Company #1-#5 are combined into this single entry. There is no specific information in those 5 records to warrant individual records. All but #4 seem to be describing mine symbols on the map, but are so non-specific as to be useless records. #4 is apparently incorrectly located, perhaps in the center of T22N. Randomly moved it to mine symbol in NW of NW of Sec. 2. No indication anywhere that the numbers 1-5 are significant or that those are actual names of those sites. Perhaps they were put in the database to differentiate between unknown sites. #4 was formerly at 41-52-40-N, 111-0-43-W, or more than 1 1/2 mi north of the end of the mined area. Moved it more than 3 mi south, closer to the stated border of T22N and T21N to the "mine" symbol in the NW of NW of sec. 2, to 41-49-52-N, 111-1-7-W.
Workings	4	http://eprints.nwisrl.ars.usda.gov/194/1/178.pdf mentions samples from both Leefe open pit mine and Leefe underground mine.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	Osterwald and others, 1966, Mineral Resources of Wyoming: Geological Survey of Wyoming Bull. 50 [revised ed.], p. 143-145.	
Deposit	2	ANNUAL REPORT OF THE INSPECTOR OF MINES FOR THE YEAR ENDING 12/31/81.	
Deposit	3	WYOMING NATURAL RESOURCE BOARD, 1969, WYOMING PHOSPHATE, IN REVIEW AND FORECAST - WYOMING MINERAL INDUSTRIES, BOOK III (NON-FUEL MINERALS), REPT. BY CAMERON ENGINEERS, P. 230-276.	
Deposit	4	MESA MET-NONMET MINE FILE REF OWN/OP STAUFFER CHEMICAL C	
Deposit	5	Spangenberg, D.R., Carey, E.F., and Takosky, P.M., 1983, Minerals availability commodity directory on phosphate: U.S. Bureau of Mines Information Circular IC-8926, 678 p.	p. 392-394.
Geology	4	GALE, H. S., AND RICHARDS, R. W., 1910, PHOSPHATES, IN U.S. GEOLOGICAL SURVEY BULL. 430, P. 457-553.	
Geology	5	MCKELVEY, V. E., SMITH, L. E., HOPPIN, R. A., AND ARMSTRONG,	

		F. C., 1953, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING: U.S. GEOLOGICAL SURVEY CIRC. 210, 35 P.
Geology	6	RICHARDSON, G. B., 1941, GEOLOGY AND MINERAL RESOURCES OF THE RANDOLPH QUADRANGLE, UTAH - WYOMING: U.S. GEOL. SURVEY BULL. 923, 54 P., PLATE.
Geology	7	RUBEY, W. W., ORIEL, S. S., AND TRACEY, J. I., JR., 1975, GEOLOGY OF THE SAGE AND KEMMERER 15-MINUTE QUADRANGLES, LINCOLN COUNTY, WYOMING: U.S. GEOLOGICAL SURVEY PROF. PAPER 855, 18 P., 2 PLATES.
Geology	8	THOMAS, H. D., 1950, SUMMARY OF THE PALEOZOIC STRATIGRAPHY OF THE GREEN RIVER BASIN, WYOMING, IN WYO. GEOL. ASSOC. 5TH ANN. FIELD CONF. GUIDEBOOK (SW WYO.), P. 17-24.
Geology	9	U.S. GEOLOGICAL SURVEY, 1954, OGDEN, UTAH; WYOMING, 1-DEGREE BY 2-DEGREE TOPOGRAPHIC MAP: U.S. GEOLOGICAL SURVEY, 1:250,000-SCALE MAP, 1 SHEET.
Ownership	10	SCHUMACHER, O. L., PENSE, R. A., AND DAVIS, R. B., 1979, FEDERAL LAND STATUS IN THE OVERTHRUST BELT OF IDAHO, MONTANA, UTAH, AND WYOMING, 1979: U.S. BUREAU OF MINES SPECIAL REPT. (IN PRESS), TEXT WITH MAPS AND OVERLAYS.
Ownership	11	U.S. BUREAU OF LAND MANAGEMENT, 1978, STATE OF WYOMING LAND STATUS: U.S. BUR. OF LAND MANAGEMENT MAP, 1:500,000 SCALE, 1 SHEET.
Workings	12	BEALL, J. V., AND MERRITT, P. C., 1966, PHOSPHATE AND POTASH - MINERALS TO FEED THE WORLD: MIN. ENG., OCT. 1966, P. 75-99.
Workings	13	COCHRAN, K L., 1950, WYOMING PHOSPHATE INDUSTRY, IN WYO. GEOL. ASSOC. 5TH ANN. FIELD CONF. GUIDEBOOK (SW WYOMING), P. 133-135.
Workings	14	KING, D. L., 1949, SURFACE STRIP PHOSPHATE MINING AT LEEFE, WYOMING, AND MONTPELIER, IDAHO, IN SYMPOSIUM ON WESTERN PHOSPHATE MINING, SAN FRANCISCO, FEB. 1949: REPR. IN A.I.M.E. MIN. TRANS., V. 184, P. 284-287.
Workings	15	KING, D. L., SR., 1967, SAN FRANCISCO CHEMICAL CO., CRAWFORD MOUNTAIN - LEEFE AREA, UTAH AND WYOMING, IN INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., P. 203-209.
Workings	16	http://eprints.nwisrl.ars.usda.gov/194/1/178.pdf (mentions samples from both Leefe open pit mine and Leefe underground mine.) last accessed 7/13/10.

Groupings:

Rec	Grouping Name
1	WLCI
2	Keith Long Significant Deposit

File Room:

SAM run*	BOM PEFR*	Consultant report	Maps/Sketches	Other images	Articles	Prod. Records	Misc. Data
Y			Y		Y		Y

Misc. Data Comment:

* Items in these columns are proprietary/confidential (for internal USGS only). Items in other columns may be, but need to be looked at on a record by record basis.

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10133470 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Wyoming Range Combined

Site Overview:

Record Type: Deposit **Deposit Type:**
Development Status: Prospect **Operation Type:** Surface-Underground
Old MRDS #: **Old MAS #:** 0560230032
Validated:

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Phosphorus-Phosphates - (P)

General Site Information:

Record Type: Deposit
Deposit Type:
Development Status: Prospect
Operation Type: Surface-Underground
Plant Type:
Plant Identifier:
Mining Method: Open Stope - Room and Pillar
Milling Method: Flotation
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Non-metallic
Significant: N
Mineralized Area Name: Wyoming Range Combined
Location Problem: N
Record added: 12-MAR-2002 00:00:00
Added By: MAS migration
Last Deposit Modification: 17-APR-2012 13:02:24
Last Table Modified: BIB_REFERENCES - Insert
Old MRDS #:
Old MAS #: 0560230032

Possible Dupes:

Name Information:

Name	Status
Wyoming Range Combined	Current
Wyoming Range	Previous
Wyoming Range #1	Contains
Wyoming Range #2	Contains
Wyoming Range #3	Contains

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Phosphorus-Phosphates - (P)	Non-metallic	Primary				
Uranium - (U)	Energy	Tertiary				

Ownership Information:

Owner Name: U.S. Government

Ownership Type: Owner

Pct: 100

Year of Information: 1979

Beginning Year:

Ending Year:

Company ID:

Home Office Location: Dist Of Columbia

Type of Mineral Holdings:

Line	Holding Type
1	Other

Location Information:

Country	State/Province	County	Quad 250

United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: WGS 84
Latitude: N-42-43-51 42.73089
Longitude: W-110-33-48 -110.56339
WGS 84 Latitude: 42.73089
WGS 84 Longitude: -110.56339
UTM Zone: 12N **Northing:** 4731023 **Easting:** 535742
Point of Reference: Ore Body
Location Accuracy: 10000
Relative Position: Approx. location in main belt of Phosphoria on east flank of Wyoming Range.
Elevation: 3050m

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 032 N
Range: 116 W
Section: 25
Fractional Sections:

Mining Districts:

Line	District Name
1	Western Phosphate

Land Status Information:

Line	Land Status	Administrative Area
1	Mixed	

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Afton	0100000	WY	Blm Surface Management Status Map
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	4230n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Afton	0125000	WY	125k - 30-Minute Map
USGS	Afton	0100000	WY	100k Topo Map
USGS	Afton	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Mount Schidler	0024000	WY	24k Topo Map
USGS	Preston	0250000	ID	250k Topo Map
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Afton Quad And Part Of The Big Piney Quad Geologic Map	0062500	WY	Regional Geology
USGS	Wyoming Base 74	0048000	WY	48k Planimetric Map
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Wyoming Peak Ne	0024000	WY	24k Graphic Oq
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources

Model Type:

USGS Number: 34c **BC Number:** F07 **MK3 Number:**

Model Name: Phosphate, upwelling type

Orebody Information:

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 50 M
Depth to Top: 50 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 1
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Secondary mode of Origin : RESIDUAL CONCENT
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 0
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801027

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 50 M
Depth to Top: 50 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 2
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Secondary mode of Origin : RESIDUAL CONCENT
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 0
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801027

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 3
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0

Date of Last Modification : 801027

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 6000 M
Depth to Top: 1000 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 6
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 30
Avg. Thick. Unconsol. Mat. : 100
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801027

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 30000 M
Depth to Top: 2300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 7
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 1524
Avg. Thick. Unconsol. Mat. : 300
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801027

Orebody Name:
Form:
Area: 2000 HA **Length:** **Width:**
Depth to Top: **Depth to Bottom:** **Thickness:**
Strike: **Dip:** **Plunge:**

MAS Matrix:
Total Surface Area (HA) : 2000
Date of Last Modification : 910418

Material/Minerals:

Ore/Gangue	Material
Unknown	Apatite
Unknown	Calcite
Unknown	Dolomite
Unknown	Feldspar
Unknown	Fluorite

Unknown	Gypsum
Unknown	Illite
Unknown	Kaolinite
Unknown	Limonite
Unknown	Montmorillonite
Unknown	Pyrite
Unknown	Quartz
Unknown	Sphene
Unknown	Tourmaline
Unknown	Zircon

Resource Information:

Year: 1954 **Line:** 1
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred: 201,700,000
Total Resources: 201,700,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	18	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1954 **Line:** 2
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:

Indicated:
Demonstrated:
Inferred: 399,500,000
Total Resources: 399,500,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	24	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 3
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 452,700,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	18	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 4
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 144,200,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	**24**	wt-pct			
H2O	Water, Free	**0**	wt-pct			

Workings Information:

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 95.9
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000

Capacity Units : MT ORE/DAY
Unit Production Cost : 11.79
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 95.9
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 16.28
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : ROOM AND PILLAR 10-34
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 88
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : SUPPORTING
Mine Support Chars. : POST, HEADBOARD, CAPS, ROOF BOLTS
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000

Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 8.23
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : ROOM AND PILLAR 10-34
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 56
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : UNSUPPORTING NO FLOW
Mine Support Chars. : TIMBER
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 10.08
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Reporters:

Reporter	Report Date	Affiliation
B,D,D,S,Ww (R)	11-OCT-1996	U.S. Bureau of Mines
Drescher, Theodore A. (R)	24-APR-1995	U.S. Bureau of Mines
newMRDS 10205999, 10278663, 10184226 or old MAS 0560230175, 176, 177. All merged and deleted. Very poor location (within 10,000 meters), no references.		
Wilson, Anna B. (E)	08-FEB-2010	U.S. Geological Survey
merged and deleted newMRDS 10205999, 10278663, 10184226		

(old MAS 0560230175, 176, 177). All had the same very poor location (+/- 10,000 meters) and no references. No information in these 3 records that isn't in the Combined record.

Causey, J. Douglas (U)	15-DEC-2010	U.S. Geological Survey

Added Model

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230032	
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230175	=newMRDS 10205999, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230176	=newMRDS 10278663, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230177	=newMRDS 10184226, merged and deleted

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Comments:

Category	Line	Comment
Deposit	1	THIS MINERALS AVAILABILITY SYSTEM EVALUATION WAS DONE AS PART OF A 1980 STUDY OF UTAH AND WYOMING PHOSPHATE DEPOSITS BY THE INTERMOUNTAIN FIELD OPERATIONS CENTER, DENVER, COLORADO. THE EASTERN PORTION OF THE DEPOSIT EXTENDS INTO SUBLETTE COUNTY. DOMAIN - ABOUT 90 PERCENT OF THE OUTCROP AREA IS CLASSIFIED AS POTENTIALLY UNAVAILABLE ROADLESS AREA REVIEW AND EVALUATION (RARE II) LAND WITH THE REMAINING 10 PERCENT OR SO CLASSIFIED AS NATIONAL FOREST LAND. MINERAL HOLDINGS - ALL PHOSPHATE MINERAL RIGHTS IN THE DEPOSIT AREA ARE HELD BY THE U.S. GOVERNMENT.
Economic Factors	1	Mining and beneficiation costs for each proposed operation were obtained by applying one of 34 basic mine models and 5 basic mill models developed for evaluating Utah and Wyoming phosphate deposits. Site-specific cost adjustments were made for land acquisition, infrastructure, unusual haulage distance to mill, the presence of multiple beds requiring mining of waste, and mill feed grade and recovery. All costs are in January 1980 dollars. The schedule of costs is based on the assumption that each proposed operation will be independently developed as soon as technically possible after the official January 1979 base date for the current phosphate study. Thus, land acquisition, exploration, and infrastructure capital costs are assumed to begin in 1979. Mine and mill capital costs include a contingency allowance of 15 percent of all other capital costs except working capital. Mine and mill working capital is estimated at 60 days of operating cost. A Bureau costing manual (bibliography data set ref. I030) was used to estimate surface and underground mine

		exploration, development, reclamation, plant, and equipment capital costs; underground mine operating costs; capital and operating costs for the calcining-hydration mill (if used) and for the flotation sections of other mills; costs of transporting products from proposed mills to existing final processing plants; and access road construction cost. Surface mine operating costs are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), and others (U.S. office of audit and investigation) for Idaho phosphate mines in 1976 and 1977. Infrastructure capital costs assigned to each proposed mine consist of only those railroad, transmission line, and access road costs which are needed for development of each mine. Railroad cost is estimated by the Richardson rapid construction cost estimating system (bibliography data set ref. I020). Transmission line cost is estimated from typical industry costs (A.W. Watts, 1980, Water and Power Resources Services, personal communication). Access road costs are estimated by using the capital and operating cost estimating handbook (bibliography data set ref. I030). Land acquisition costs are based on typical competitive bids for leases in southeastern Idaho, adjusted for specific deposit grade and thickness. Lease rentals and royalties are based on current rates for federal leases in the western phosphate field. Capital and operating costs for all mills, excepting the calcination-hydration mill (if used) and flotation sections of other mills, are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), from costs given for a sizing and calcining mill described by de Voto, et al. (bibliography data set ref. R030), vol. 2, appendix d. Site-specific cost adjustments for mill feed grade and recovery are made, using relative cost factors calculated from average cost and recovery curves for altered and unaltered ores (bibliography data set ref. I010).
General	1	PROPERTY HAS BEEN SPLIT INTO THREE SEPARATE DEPOSITS FOR SUPPLY ANALYSIS WITH SEQ NOS. 0560230175, 0560230176, AND 0560230177 THAT ARE RESPECTIVELY NAMED WYOMING RANGE NO 1, WYOMING RANGE NO 2, AND WYOMING RANGE NO 3. REFER TO THESE DEPOSITS FOR THE INDIVIDUAL RESERVES AND PRODUCTION DATA. {In effect, these are duplicate records and should be considered for possible deletion. ABWilson, 6-22-10]
Geology	1	THE PHOSPHORIA FORMATION IS SUBDIVIDED INTO FIVE MEMBERS BY MCKELVEY (BIBLIOGRAPHY REF. L010), TWO OF WHICH (THE MEADE PEAK AND RETORT MEMBERS) CONTAIN SIGNIFICANT PHOSPHATE DEPOSITS. IN UTAH AND SOUTHWESTERN WYOMING, THE MEADE PEAK MEMBER, AND IN CENTRAL AND NORTHWESTERN WYOMING, THE RETORT MEMBER CONTAIN THE DEPOSITS OF POTENTIAL INTEREST. THE PARK CITY FORMATION OF UTAH AND CENTRAL WYOMING AND THE SHEDHORN SANDSTONE OF NORTHWESTERN WYOMING ARE STRATIGRAPHIC EQUIVALENTS OF AND INTERTONGUE WITH THE PHOSPHORIA FORMATION. THE PHOSPHORIA FORMATION AND EQUIVALENT FORMATIONS ARE UNDERLAIN BY EITHER THE TENSLEEP SANDSTONE, WEBER QUARTZITE, WELLS FORMATION, OR DIAMOND CREEK SANDSTONE AND ARE OVERLAIN BY EITHER THE WOODSIDE OR DINWOODY FORMATIONS.
Location	2	This is not a site record. It is for the entire Wyoming Range. Coded as a district, but that isn't entirely correct either.
Ownership	1	PHOSPHATE LANDS MAY BE LEASED FROM THE U.S. GOVERNMENT, ALTHOUGH THE FUTURE LEASING SITUATION IS UNCERTAIN DUE TO THE RARE II CLASSIFICATION OF MUCH OF THE AREA (SEE COMMENTS 031-034). CURRENTLY, THERE ARE NO ACTIVE LEASES OR PROSPECTING PERMITS WITHIN THE DEPOSIT AREA.
Production	1	RECOVERIES IN THE YIELD DATA SET FOR TWO-PRODUCT MILLS ARE CALCULATED FROM THE TOTAL FEED TO THE MILL AND ARE NOT ACTUAL RECOVERIES WITHIN EACH ORE STREAM. WITHIN _ORE-STREAM RECOVERIES FOR TWO-PRODUCT MILLS PROPOSED IN THIS EVALUATION ARE 89.5 PERCENT FOR MILL K1, DEV SCH 1&2, 87.5% FOR MILL K3, DEV SCH 1, AND 78% FOR MILL K3, DEV SCH 2. EXACT RECOVERIES USED IN CALCULATING PRODUCT OUTPUT TONNAGES FOR TWO

		PRODUCT MILLS PROPOSED IN THIS EVALUATION ARE 80.6945 PERCENT FOR PRODUCT A, DEV SCH 1&2; 8.8055 % FOR PRODUCT F, DEV SCH 1&2; 26.5321 PERCENT FOR PRODUCT C, DEV SCH 1; 60.9679 PERCENT FOR PRODUCT H. DEV SCH 1; 23.6515 PERCENT FOR PRODUCT C, DEV SCH 2; 54.3485 % FOR PRODUCT H, DEV SCH 2.
Production	2	PRODUCTS A, B, C, D, AND E, WHERE PROPOSED IN THIS EVALUATION, ARE ACID GRADE PRODUCTS, AND PRODUCTS F, G, H, I, AND J, ARE FURNACE GRADE PRODUCTS. NOT ALL OF THESE PRODUCTS ARE USED IN THIS EVALUATION.
Production	3	THE EXACT YEAR OF DISCOVERY OF PHOSPHATE IN THE WYOMING RANGE IS NOT KNOWN, BUT WAS AROUND THE TURN OF THE CENTURY. EXPLORATION IN THE AREA HAS BEEN CONFINED MOSTLY TO GEOLOGIC MAPPING, AND NO PRODUCTION HAS OCCURRED.
Reserve-Resource	1	PROPERTY HAS BEEN SPLIT INTO THREE SEPARATE DEPOSITS FOR SUPPLY ANALYSIS WITH SEQ NOS. 0560230175, 0560230176, AND 0560230177 THAT ARE RESPECTIVELY NAMED WYOMING RANGE NO 1, WYOMING RANGE NO 2, AND WYOMING RANGE NO 3. REFER TO THESE DEPOSITS FOR THE INDIVIDUAL RESERVES AND PRODUCTION DATA.
Workings	1	ABBREVIATION FOR MINING DISTRICT: WEST. PHOSPHATE = WESTERN PHOSPHATE FIELD.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	CLABAUGH, P. S., 1946, PERMIAN PHOSPHATE DEPOSITS OF MONTANA, IDAHO, WYOMING, AND UTAH: U.S. GEOLOGICAL SURVEY STRATEGIC MINER. INV. PRELIM. MAP 3-198, 1 SHEET.	
Deposit	2	GARRAND CORPORATION, 1975 (?), PHOSPHATE RESERVES OF SOUTHEASTERN IDAHO: U.S. DEPT. OF AGR. CONTRACT NO. 50-820, 1102 P.	
Deposit	3	HALE, L. A., ED., 1967, ANATOMY OF THE WESTERN PHOSPHATE FIELD: INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., 287 P., 3 PLATES.	
Deposit	4	U.S. GEOLOGICAL SURVEY, 1955, PRESTON, IDAHO; WYOMING, 1-DEGREE BY 2-DEGREE TOPOGRAPHIC MAP: U.S. GEOL. SURVEY, 1:250,000-SCALE MAP, 1 SHEET.	
Deposit	5	Spangenberg, D.R., Carey, E.F., and Takosky, P.M., 1983, Minerals availability commodity directory on phosphate: U.S. Bureau of Mines Information Circular IC-8926, 678 p.	p. 384-387.
Geology	4	MCKELVEY, V. E., 1946, PRELIMINARY REPORT ON STRATIGRAPHY OF THE PHOSPHATIC SHALE MEMBER OF THE PHOSPHORIA FORMATION IN WESTERN WYOMING, SOUTHEASTERN IDAHO, AND NORTHERN UTAH: U.S. GEOLOGICAL SURVEY UNPUB. REPT., 162 P. OBTAINED FROM U.S. GEOLOGICAL SURVEY DEPT. OF CONSERV. OFFICE IN ROCK SPRINGS, WYO.	
Geology	10	KING, D. L., 1949, SURFACE STRIP PHOSPHATE MINING AT LEEFE, WYOMING, AND MONTPELIER, IDAHO, IN SYMPOSIUM ON WESTERN PHOSPHATE MINING, SAN FRANCISCO, FEB. 1949: REPR. IN A.I.M.E. MIN. TRANS., V. 184, P. 284-287.	
Geology	14	GEOLOGICAL SURVEY OF WYOMING, 1978, THE WYOMING MINERAL INDUSTRY: GEOLOGICAL SURVEY OF WYO. PUBLIC INF. CIRC. 8.	
Geology	16	LINES, G. C., AND GLASS, W. R., 1975, WATER RESOURCES OF THE THRUST BELT OF WESTERN WYOMING: U.S. GEOLOGICAL SURVEY HYDROL. INV. ATLAS MAP HA-539.	
Geology	19	HORBERG, LELAND, NELSON, VINCENT, AND CHURCH, VICTOR, 1949, STRUCTURAL TRENDS IN CENTRAL WESTERN WYOMING: GEOL SOC. OF	

		AMERICA BULL., V. 60, P. 183-216.
Geology	20	MCKELVEY, V. E., 1959, THE PHOSPHORIA, PARK CITY, AND SHEDHORN FORMATIONS IN THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY PROF. PAPER 313-A, P. 1-47, 3 PLATES.
Geology	21	GULBRANDSEN, R. A., 1967, SOME COMPOSITIONAL FEATURES OF PHOSPHORITES OF THE PHOSPHORIA FORMATION, IN INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., P. 99-102.
Ownership	22	U.S. BUREAU OF LAND MANAGEMENT, 1978, STATE OF WYOMING LAND STATUS: U.S. BUR. OF LAND MANAGEMENT MAP, 1:500,000-SCALE, 1 SHEET.
Production	1	DUNCAN, W. E., AND FISK, H. G., 1957, CENTRAL WYOMING PHOSPHATE ROCK - CHARACTER, PROCESSING, AND ECONOMICS: UNIV. OF WYO. NAT. RES. RESEARCH INST. BULL. 6, 60 P.
Production	2	EBERL, E., 1970, BENEFICIATION OF CALCIUM PHOSPHATE BY CALCINATION, THE MATERIAL BALANCE: RUDARSKO - METALURSKI ZBORNIK, NO. 2-3, 1970, P. 275-283.
Production	3	GOKHALE, K. V. G. K., RAO, T. C., AND BISWAS, A. K., 1975, BENEFICIATION STUDIES ON A HIMALAYAN LEAN PHOSPHATE DEPOSIT WITH CALCAREOUS GANGUE, IN SEMINAR ON BENEFICIATION OF LEAN PHOSPHATE WITH CARBONATE GANGUE, 11TH INTERNAT. MINERALS PROCESSING CONGRESS, KAGLIARI, ITALY, APRIL 23-24, 1975, P. 53-54.
Production	4	GOOD, P. C., 1976, BENEFICIATION OF UNWEATHERED INDIAN CALCAREOUS PHOSPHATE ROCK BY CALCINATION AND HYDRATION: U.S. BUREAU OF MINES REPT. INV. 8154, 17 P.
Production	5	NEUBERGER, R., 1968, PHOSPHATE ROCK CALCINATION IN ISRAEL: PHOSPHORUS AND POTASSIUM, NO. 35, MAY/JUNE 1968, P. 11-21.
Production	6	RULE, A. R., DAHLIN, D. C., AND FERGUS, A. J., 1978, FLOTATION OF CARBONATE AND SILICATE MINERALS FROM PARTIALLY ALTERED PHOSPHATE ROCK OF THE PHOSPHORIA FORMATION, PAPER PRESENTED AT ISMA TECHNICAL/ECON. CONF.; ORLANDO, FLA., OCT. 23-27, 1979, 11 P.
Production	7	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1977, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES, PAPER PRESENTED AT S.M.E. FALL MEETING AND EXHIBIT, ST. LOUIS MO., OCT. 19-21, 1977, 17 P.
Production	8	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1978, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES: MIN. ENG., JAN. 1978, P. 37-40.
Reference	1	HARRIS, R. A., DAVIDSON, D. F., AND ARNOLD, B. P., 1954, BIBLIOGRAPHY OF THE GEOLOGY OF THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY BULL. 1018, 89 P.
Reserve-Resource	1	COFFMAN, J. S., AND SERVICE, A. L., 1967, AN EVALUATION OF THE WESTERN PHOSPHATE INDUSTRY AND ITS RESOURCES - PART 4, WYOMING AND UTAH: U.S. BUREAU OF MINES REPT. INV. 6934, 158 P.
Reserve-Resource	2	DE VOTO, R. H., AND STEVENS, D. N., ED., 1979, URANIFEROUS PHOSPHATE RESOURCES AND TECHNOLOGY AND ECONOMICS OF URANIUM RECOVERY FROM PHOSPHATE RESOURCES, UNITED STATES AND FREE WORLD: SUBCONTRACT 78-177-S TO DEPT. OF ENERGY CONTRACT 50-54-5903 (BENDIX FIELD ENG. CORP.) BY EARTH SCIENCES INC., 1396 P. PLUS PLATES.
Reserve-Resource	3	SHELDON, R. P., CRESSMAN, E. R., CARSWELL, L. D., SMART, R. A., 1954, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING, 1952: U.S. GEOLOGICAL SURVEY CIRC. 325, 24 P.

Groupings:

Rec	Grouping Name
1	WLCI

File Room:

SAM run*	BOM PEFR*	Consultant report	Maps/Sketches	Other images	Articles	Prod. Records	Misc. Data
Y			Y		Y		Y

Misc. Data Comment:

* Items in these columns are proprietary/confidential (for internal USGS only). Items in other columns may be, but need to be looked at on a record by record basis.

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10157091 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Price & Thomas Claims

Site Overview:

Record Type: Site **Deposit Type:**
Development Status: Prospect **Operation Type:** Unknown
Old MRDS #: **Old MAS #:** 0560230047
Validated: N

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Uranium - (U)

General Site Information:

Record Type: Site **Deposit Type:**
Development Status: Prospect **Operation Type:** Unknown

Plant Type:		**Plant Identifier:**	
Mining Method:	Unknown	**Milling Method:**	
Year of First Production:		**Year of Last Production:**	
Years of Production:			
Year of Discovery:		**Discovery Method:**	
Discoverer:			
Site Commodity Types:	Energy	**Significant:**	N
Mineralized Area Name:		**Location Problem:**	
Record added:	12-MAR-2002 00:00:00	**Added By:**	MAS migration
Last Deposit Modification:	07-OCT-2012 07:59:17	**Last Table Modified:**	BIB_REFERENCES - Update
Old MRDS #:		**Old MAS #:**	0560230047
Possible Dupes:			

Name Information:

Name	Status
Price & Thomas Claims	Current

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Primary				

Ownership Information:

Owner Name:	PRICE & THOMAS		**Ownership Type:**	Owner	**Pct:**
Year of Information:			**Beginning Year:**		**Ending Year:**
Company ID:		**Home Office Location:**			

Location Information:

Country	State/Province	County	Quad 250

United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: WGS 84

Latitude: N-42-16-39 42.2775

Longitude: W-111-1-25 -111.02361

WGS 84 Latitude: 42.2775

WGS 84 Longitude: -111.02361

UTM Zone: 12N **Northing:** 4680373 **Easting:** 498053

Point of Reference: Ore Body

Location Accuracy: 2000

Relative Position: Described as being in the Phosphoria Frm., so ABW moved point about 2000 meters east to be in the right rocks. No way to verify this information, other than that there is a point on the Harris and others, MS-14 map suggesting there is U and V in this vicinity.

Elevation: 1890m

Land Status Information:

Line	Land Status	Administrative Area
1	Federal	

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Geneva Flood Prone Areas	0024000	ID	Flood Prone Areas
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
	Preston 1'X2' Quad			

USGS	Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Preston	0100000	ID	100k Topo Map
USGS	Preston	0100000	ID	Blm Surface Minerals Management Status Map
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Preston	0100000	ID	Blm Surface Management Status Map
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Geneva Wetlands	0024000	ID	National Wetlands Inventory
USGS	Idaho Base 96	0048000	ID	48k Planimetric Map
USGS	Preston	0250000	ID	250k Topo Map
USGS	Preston Quadrangle Map	0100000	ID	County Highway Map
USGS	4200n11100w Photogeologic Map	0096000	ID	Energy Resources
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Geneva	0024000	ID	24k Topo Map
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Geneva	0024000	ID	24k Graphic Oq
USGS	Montpelier	0125000	ID	125k - 30-Minute Map

Model Type:

USGS Number: 30c **BC Number:** D05 **MK3 Number:**
Model Name: Sandstone U

Reporters:

Reporter	Report Date	Affiliation
Intermountain Field Operations Center (IFOC) (R)	18-NOV-1983	U.S. Bureau of Mines
Wilson, Anna B. (E)	01-APR-2011	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230047	

Comments:

Category	Line	Comment
Geology	1	RA ASSOC WITH V AND PHOSPHATE IN SHALE IN PERMIAN PHOSPHOR
Identification	1	Unverifiable record. Probably was plotting about 1 mile too far west, in Sec. 1, T26N, R120W. Should be in the Phosphoria Formation, most likely in T26N, R119W, sec. 6, in the same outcrop of Phosphoria as the Raymond Canyon Phosphate. ABW moved coordinates to Raymond Canyon.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	AEC PRELIM FIELD INVESTIGATIONS AIRBORNE RA ANOMALIES	
Identification	1	Harris, R.E., Hausel, W.D., and Meyer, J.E., 1985, Metallic and industrial minerals map of Wyoming: Wyoming Geological Survey map Series 14, scale 1:500,000M	

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10181469 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Sublette Range Combined

Site Overview:

Record Type: Deposit **Deposit Type:**
Development Status: Past Producer **Operation Type:** Surface-Underground
Old MRDS #: **Old MAS #:** 0560230102

Validated:

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Phosphorus-Phosphates - (P)

General Site Information:

Record Type: Deposit
Deposit Type:
Development Status: Past Producer
Operation Type: Surface-Underground
Plant Type:
Plant Identifier:
Mining Method: Open Pit
Milling Method: Washing
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Non-metallic
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MAS migration
Last Deposit Modification: 17-APR-2012 13:18:05
Last Table Modified: NAMES - Update
Old MRDS #:
Old MAS #: 0560230102
Possible Dupes:

Name Information:

Name	Status
Sublette Range	Contains
Cokeville Phosphate Mine	Contains
York Canyon	Contains
Coal Canyon	Contains
Layland Canyon	Contains
Sublette Ridge	Contains
Raymond Canyon	Contains
Sublette Range Combined	Current
Sublette Range #1	Contains
Sublette Range #2	Contains
York Canyon Mine	Contains
Coal Canyon Mine	Contains

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Phosphorus-Phosphates - (P)	Non-metallic	Primary				
Uranium - (U)	Energy	Tertiary				

Ownership Information:

Owner Name: U.S. Government
Ownership Type: Owner
Pct: 10
Year of Information: 1980
Beginning Year:
Ending Year:
Company ID:
Home Office Location: Dist Of Columbia

Type of Mineral Holdings:

Line	Holding Type
1	Patented
2	Fee Ownership

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: NAD27
Latitude: N-42-12-0 42.2
Longitude: W-110-59-0 -110.9833
WGS 84 Latitude: 42.2
WGS 84 Longitude: -110.9833
UTM Zone: 12N **Northing:** 4671768 **Easting:** 501376

Point of Reference: Ore Body
Location Accuracy: 10000
Relative Position:
Elevation: 2830m

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 027 N
Range: 119 W
Section: 19
Fractional Sections:

Mining Districts:

Line	District Name
1	Western Phosphate

Land Status Information:

Line	Land Status	Administrative Area
1	Mixed	

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Cokeville	0125000	WY	125k - 30-Minute Map
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Minerals Management Status

				Map
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Geologic Map And Structure Sections Of The Cokeville 30 Minute Quadrangle	0062500	WY	Misc Geologic Investigation
USGS	Marse Flood Prone Areas	0024000	WY	Flood Prone Areas
USGS	Preston	0250000	ID	250k Topo Map
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Marse	0024000	WY	24k Graphic Oq
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	4200n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Marse	0024000	WY	24k Topo Map
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Wyoming Base 77	0048000	WY	48k Planimetric Map
USGS	Fontenelle Reservoir	0100000	WY	100k Topo Map
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Management Status Map
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources

Model Type:

USGS Number: 34c **BC Number:** F07 **MK3 Number:**
Model Name: Phosphate, upwelling type

Orebody Information:

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 50 M
Depth to Top: 50 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix # : 1
Type of Orebody #1 : SEDIMENTARY

MAS Matrix:
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Secondary mode of Origin : RESIDUAL CONCENT
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 0
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801027

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 3
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801027

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 6000 M
Depth to Top: 1000 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 6
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 30
Avg. Thick. Unconsol. Mat. : 100
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801027

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 30000 M
Depth to Top: 2300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 7
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 1524
Avg. Thick. Unconsol. Mat. : 300
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801027

Orebody Name:
Form:
Area: 2000 HA **Length:** **Width:**
Depth to Top: **Depth to Bottom:** **Thickness:**
Strike: **Dip:** **Plunge:**
MAS Matrix: Total Surface Area (HA) : 2000
Date of Last Modification : 910418

Material/Minerals:

Ore/Gangue	Material
Unknown	Apatite
Unknown	Calcite
Unknown	Dolomite
Unknown	Feldspar
Unknown	Fluorite
Unknown	Gypsum
Unknown	Illite
Unknown	Kaolinite
Unknown	Limonite
Unknown	Montmorillonite
Unknown	Pyrite
Unknown	Quartz
Unknown	Sphene
Unknown	Tourmaline
Unknown	Zircon

Resource Information:

Year: 1910 **Line:** 1
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 32,500,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	31	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1910 **Line:** 2
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 5,500,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	31	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1910 **Line:** 3
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:

Inferred:
Total Resources: 2,400,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	35	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 4
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 37,800,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	18	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 5
Resource Type: In-situ **Resource Name:**

Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 24,000,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	**24**	wt-pct			
H2O	Water, Free	**0**	wt-pct			

Workings Information:

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 93.7
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 10.92
Units of Production : $/MT ORE

Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 93.7
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 15.09
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : OVERHAND SHRINKAGE 10-67
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : SUPPORTING
Mine Support Chars. : POST, HEADBOARD, CAPS, ROOF BOLTS
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY

Unit Production Cost : 18.77
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : UNSUPPORTING NO FLOW
Mine Support Chars. : TIMBER
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 27.38
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Reporters:

Reporter	Report Date	Affiliation
B,D,D,S,Ww (R)	11-OCT-1996	U.S. Bureau of Mines
Drescher, Theodore A. (R) created 0560230186 (=10278872) and 0560230187 (=10206290).	24-APR-1995	U.S. Bureau of Mines
Wilson, Anna B. (E) merged and deleted 0560230186 (=10278872) and 0560230187 (=10206290).	05-FEB-2010	U.S. Geological Survey
Causey, J. Douglas (U) Addded Model	15-DEC-2010	U.S. Geological Survey

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230102	
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230186	=10278872, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230187	=10206290, merged and deleted.

Comments:

Category	Line	Comment
Deposit	1	DOMAIN - AT LEAST 90 PERCENT OF THE OUTCROP AREA IS UNDER PRIVATE OWNERSHIP WITH THE REMAINING LAND UNDER U.S. BUREAU OF LAND MANAGEMENT CONTROL. THE MAJOR REASON FOR THIS SITUATION IS THAT THE PATENTED CLAIMS IN THE AREA WERE NOT PROPERLY OVERLAP STAKED, THUS LEAVING SMALL PARCELS OF LAND BETWEEN THE CLAIMS UNDER BLM CONTROL.
Economic Factors	1	Mining and beneficiation costs for each proposed operation were obtained by applying one of 34 basic mine models and 5 basic mill models developed for evaluating Utah and Wyoming phosphate deposits. Site-specific cost adjustments were made for land acquisition, infrastructure, unusual haulage distance to mill, the presence of multiple beds requiring mining of waste, and mill feed grade and recovery. All costs are in January 1980 dollars. The schedule of costs is based on the assumption that each proposed operation will be independently developed as soon as technically possible after the official January 1979 base date for the current phosphate study. Thus, land acquisition, exploration, and infrastructure capital costs are assumed to begin in 1979. Mine and mill capital costs include a contingency allowance of 15 percent of all other capital costs except working capital. Mine and mill working capital is estimated at 60 days of operating cost. A Bureau costing manual (bibliography data set ref. I030) was used to estimate surface and underground mine exploration, development, reclamation, plant, and equipment capital costs; underground mine operating costs; capital and operating costs for the calcining-hydration mill (if used) and for the flotation sections of other mills; costs of transporting products from proposed mills to existing final processing plants; and access road construction cost. Surface mine operating costs are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), and others (U.S. office of audit and investigation) for Idaho phosphate mines in 1976 and 1977. Infrastructure capital costs assigned to each proposed mine consist of only those railroad, transmission line, and access road costs which are needed for development of each mine. Railroad cost is estimated by the Richardson rapid construction cost estimating system (bibliography data set ref. I020). Transmission line cost is estimated from typical industry costs (A.W. Watts, 1980, Water and Power Resources Services, personal communication). Access road costs are estimated by using the capital and operating cost estimating handbook (bibliography data set ref. I030). Land acquisition costs are based on typical competitive bids for leases in southeastern Idaho, adjusted for specific deposit grade and thickness. Lease rentals and royalties are based on current rates for federal leases in the western phosphate field. Capital and

		operating costs for all mills, excepting the calcination-hydration mill (if used) and flotation sections of other mills, are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), from costs given for a sizing and calcining mill described by de Voto, et al. (bibliography data set ref. R030), vol. 2, appendix d. Site-specific cost adjustments for mill feed grade and recovery are made, using relative cost factors calculated from average cost and recovery curves for altered and unaltered ores (bibliography data set ref. I010).
General	1	Former records Sublette Range #1 0560230186 (=10278872) and Sublette Range #2, 0560230187 (=10206290), entered by Dresher of USBM in 1995 were merged and deleted. The first may have been an adit record, but no information particular to that site was in the record. Similarly, the latter was perhaps an adit, but the location given is identical to that of the combined record.
Geology	1	THE PHOSPHORIA FORMATION IS SUBDIVIDED INTO FIVE MEMBERS BY MCKELVEY (BIBLIOGRAPHY REF. L010), TWO OF WHICH (THE MEADE PEAK AND RETORT MEMBERS) CONTAIN SIGNIFICANT PHOSPHATE DEPOSITS. IN UTAH AND SOUTHWESTERN WYOMING, THE MEADE PEAK MEMBER, AND IN CENTRAL AND NORTHWESTERN WYOMING, THE RETORT MEMBER CONTAIN THE DEPOSITS OF POTENTIAL INTEREST. THE PARK CITY FORMATION OF UTAH AND CENTRAL WYOMING AND THE SHEDHORN SANDSTONE OF NORTHWESTERN WYOMING ARE STRATIGRAPHIC EQUIVALENTS OF AND INTERTONGUE WITH THE PHOSPHORIA FORMATION. THE PHOSPHORIA FORMATION AND EQUIVALENT FORMATIONS ARE UNDERLAIN BY EITHER THE TENSLEEP SANDSTONE, WEBER QUARTZITE, WELLS FORMATION, OR DIAMOND CREEK SANDSTONE AND ARE OVERLAIN BY EITHER THE WOODSIDE OR DINWOODY FORMATIONS.
Names	1	OTHER NAMES:COKEVILLE PHOSPHATE MINE, YORK CANYON, COAL CANYON, RAYMOND CANYON, LAYLAND CANYON.
Production	1	RECOVERIES IN THE YIELD DATA SET FOR TWO-PRODUCT MILLSARE CALCULATED FROM THE TOTAL FEED TO THE MILL AND ARE NOT ACTUAL RECOVERIES WITHIN EACH ORE STREAM. WITHIN-ORE-STREAM RECOVERIES FOR TWO-PRODUCT MILLS PROPOSED IN THIS EVALUATION ARE 92.0 PERCENT FOR MILL K1, DEV SCH 1 & 2; 84% FOR MILL K3, DEV SCH 1; 69% FOR MILL K3, DEV SCH 2. EXACT RECOVERIES USED IN CALCULATING PRODUCT OUTPUT TONNAGES FOR TWO PRODUCT MILLS PROPOSED IN THIS EVALUATION ARE 25.2998 PERCENT FOR PRODUCT A, DEV SCH 1&2; 66.7002% FOR PRODUCT F, DEV SCH 1&2; 30.0809 PERCENT FOR PRODUCT C. DEV SCH 1; 53.9191 PERCENT FOR PRODUCT H, DEV SCH 1; 24.7093 PERCENT FOR PRODUCT C, DEV SCH 1; 44.2907 PER- CENT FOR PRODUCT H,. DEV SCH 2.
Production	2	PRODUCTS A, B, C,D, AND E, WHERE PROPOSED IN THIS EVALUATION, ARE ACID GRADE PRODUCTS, AND PRODUCTS F,G,H, I, AND J, ARE FURNACE GRADE PRODUCTS. NOT ALL OF THESE PRODUCTS ARE USED IN THIS EVALUATION.
Reserve-Resource	1	RESERVE RECORD 1 CONTAIN|S TOTAL RESOURCES IN BOTH NORTHERN MAIN TREND OUTCROPS, EAST FLANK OF ANTICLINE ONLY IN THE RAYMOND CANYON - COAL CANYON OUTCROP. RESERVE RECORD 2 CONTAINS RESOURCES IN THE LAYLAND CANYON AREA. RESERVE RECORD 3 CONTAINS RESOURCES IN THE COKEVILLE BUTTE AREA. RESERVE RECORDS 1, 2, AND 3 ARE CONTAINED IN 5-FOOT BEDS WITHIN 2000 FEET OF DIP LENGTH. RESERVE RECORDS 4 AND 5 ARE FOR ALL THE SUBLETTE RANGE AREA.
Reserve-Resource	2	PROPERTY HAS BEEN SPLIT INTO 2 SEPARATE DEPOSITS FOR SUPPLY ANALYSIS WITH SEQUENCE NOS. 0560230186 AND 0560230187, RESPECTIVELY NAMED SUBLETTE RANGE N0 1 AND SUBLETTE RANGE NO 2. REFER TO THE RESPECTIVE DEPOSITS FOR THE RELATED RESERVES AND OPERATING DATA.
Workings	1	ABBREVIATION FOR MINING DISTRICT: WEST. PHOSPHATE = WESTERN PHOSPHATE FIELD.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	CLABAUGH, P. S., 1946, PERMIAN PHOSPHATE DEPOSITS OF MONTANA, IDAHO, WYOMING, AND UTAH: U.S. GEOLOGICAL SURVEY STRATEGIC MINER. INV. PRELIM. MAP 3-198, 1 SHEET.	
Deposit	2	GARRAND CORPORATION, 1975 (?), PHOSPHATE RESERVES OF SOUTHEASTERN IDAHO: U.S. DEPT. OF AGR. CONTRACT NO. 50-820, 1102 P.	
Deposit	3	HALE, L. A., ED., 1967, ANATOMY OF THE WESTERN PHOSPHATE FIELD: INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., 287 P., 3 PLATES.	
Deposit	5	Spangenberg, D.R., Carey, E.F., and Takosky, P.M., 1983, Minerals availability commodity directory on phosphate: U.S. Bureau of Mines Information Circular IC-8926, 678 p.	p. 399-403.
Geology	4	GALE, H. S., AND RICHARDS, R. W., 1910, PHOSPHATES, IN U.S. GEOLOGICAL SURVEY BULL. 430, P. 457-553.	
Geology	5	GULBRANDSEN, R. A., 1960, PETROLOGY OF THE MEADE PEAK PHOSPHATIC SHALE MEMBER OF THE PHOSPHORIA FORMATION AT COAL CANYON, WYOMING: U.S. GEOLOGICAL SURVEY BULL. 111-C, P. 71-146, 2 PLATES.	
Geology	6	MANSFIELD, G. R., 1927, GEOGRAPHY, GEOLOGY, AND MINERAL RESOURCES OF PART OF SOUTHEASTERN IDAHO: U.S. GEOL. SURVEY PROF. PAPER 152, 453 P., 12 PLATES.	
Geology	7	MCKELVEY, V. E., SMITH, L. E., HOPPIN, R. A., AND ARMSTRONG, F. C., 1953, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING: U.S. GEOLOGICAL SURVEY CIRC. 210, 35 P.	
Geology	8	RUBEY, W. W., ORIEL, S. S., AND TRACEY, J. I., JR., 1976, GEOLOGIC MAP OF THE COKEVILLE 30-MINUTE QUADRANGLE, LINCOLN AND SUBLETTE COUNTIES, WYOMING: U.S. GEOL. SURVEY OPEN FILE REPT. 76-597, 1 PLATE.	
Geology	9	SHELDON, R. P., WARING, R. G., WARNER, M. A., SMART, R. A., 1953, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING, 1949-50: U.S. GEOLOGICAL SURVEY CIRC.307, 45 P.	
Geology	10	U.S. GEOLOGICAL SURVEY, 1955, PRESTON, IDAHO; WYOMING, 1-DEGREE BY 2-DEGREE TOPOGRAPHIC MAP: U.S. GEOL. SURVEY, 1:250,000-SCALE MAP, 1 SHEET.	
Geology	11	U.S. GEOLOGICAL SURVEY, 1960, MINERAL AND WATER RESOURCES OF WYOMING: U.S. CONGRESS - SENATE, DOC. 76, P. 14-16, 145-147.	
Geology	12	MCKELVEY, V. E., 1959, THE PHOSPHORIA, PARK CITY, AND SHEDHORN FORMATIONS IN THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY PROF. PAPER 313-A, P. 1-47, 3 PLATES.	
Geology	13	GULBRANDSEN, R. A., 1967, SOME COMPOSITIONAL FEATURES OF PHOSPHORITES OF THE PHOSPHORIA FORMATION, IN INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., P. 99-102.	
Ownership	1	U.S. BUREAU OF LAND MANAGEMENT, 1978, STATE OF WYOMING LAND STATUS: U.S. BUR. OF LAND MANAGEMENT MAP, 1:500,000 SCALE, 1 SHEET.	
Production	1	DUNCAN, W. E., AND FISK, H. G., 1957, CENTRAL WYOMING PHOSPHATE ROCK - CHARACTER, PROCESSING, AND ECONOMICS: UNIV. OF WYO. NAT. RES. RESEARCH INST. BULL. 6, 60 P.	
Production	2	EBERL, E., 1970, BENEFICIATION OF CALCIUM PHOSPHATE BY CALCINATION, THE MATERIAL BALANCE: RUDARSKO - METALURSKI ZBORNIK, NO. 2-3, 1970, P. 275-283.	
Production	3	GOKHALE, K. V. G. K., RAO, T. C., AND BISWAS, A. K., 1975, BENEFICIATION STUDIES ON A HIMALAYAN LEAN PHOSPHATE DEPOSIT WITH CALCAREOUS GANGUE, IN SEMINAR ON BENEFICIATION OF LEAN	

		PHOSPHATE WITH CARBONATE GANGUE, 11TH INTERNAT. MINERALS PROCESSING CONGRESS, KAGLIARI, ITALY, APRIL 23-24, 1975, P. 53-54.
Production	4	GOOD, P. C., 1976, BENEFICIATION OF UNWEATHERED INDIAN CALCAREOUS PHOSPHATE ROCK BY CALCINATION AND HYDRATION: U.S. BUREAU OF MINES REPT. INV. 8154, 17 P.
Production	5	NEUBERGER, R., 1968, PHOSPHATE ROCK CALCINATION IN ISRAEL: PHOSPHORUS AND POTASSIUM, NO. 35, MAY/JUNE 1968, P. 11-21.
Production	6	RULE, A. R., DAHLIN, D. C., AND FERGUS, A. J., 1978, FLOTATION OF CARBONATE AND SILICATE MINERALS FROM PARTIALLY ALTERED PHOSPHATE ROCK OF THE PHOSPHORIA FORMATION, PAPER PRESENTED AT ISMA TECHNICAL/ECON. CONF.; ORLANDO, FLA., OCT. 23-27, 1979, 11 P.
Production	7	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1977, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES, PAPER PRESENTED AT S.M.E. FALL MEETING AND EXHIBIT, ST. LOUIS MO., OCT. 19-21, 1977, 17 P.
Production	8	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1978, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES: MIN. ENG., JAN. 1978, P. 37-40.
Reference	1	HARRIS, R. A., DAVIDSON, D. F., AND ARNOLD, B. P., 1954, BIBLIOGRAPHY OF THE GEOLOGY OF THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY BULL. 1018, 89 P.
Reserve-Resource	1	COFFMAN, J. S., AND SERVICE, A. L., 1967, AN EVALUATION OF THE WESTERN PHOSPHATE INDUSTRY AND ITS RESOURCES - PART 4, WYOMING AND UTAH: U.S. BUREAU OF MINES REPT. INV. 6934, 158 P.
Reserve-Resource	2	DE VOTO, R. H., AND STEVENS, D. N., ED., 1979, URANIFEROUS PHOSPHATE RESOURCES AND TECHNOLOGY AND ECONOMICS OF URANIUM RECOVERY FROM PHOSPHATE RESOURCES, UNITED STATES AND FREE WORLD: SUBCONTRACT 78-177-S TO DEPT. OF ENERGY CONTRACT 50-54-5903 (BENDIX FIELD ENG. CORP.) BY EARTH SCIENCES INC., 1396 P. PLUS PLATES.

Groupings:

Rec	Grouping Name
1	WLCI

File Room:

SAM run*	BOM PEFR*	Consultant report	Maps/Sketches	Other images	Articles	Prod. Records	Misc. Data
Y			Y		Y		Y

Misc. Data Comment:

Mining Permit Application

* Items in these columns are proprietary/confidential (for internal USGS only). Items in other columns may be, but need to be looked at on a record by record basis.

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10206113
Site Name: South Ridges Combined
Printout Date: 28-JAN-2013 02:43 pm

Site Overview:

Record Type: Deposit
Deposit Type:
Development Status: Past Producer
Operation Type: Surface-Underground
Old MRDS #:
Old MAS #: 0560230101
Validated:

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Phosphorus-Phosphates - (P)

General Site Information:

Record Type: Deposit
Deposit Type:
Development Status: Past Producer
Operation Type: Surface-Underground
Plant Type:
Plant Identifier:
Mining Method: Shrinkage Methods
Milling Method: Flotation
Year of First Production: 1948
Year of Last Production: 1949
Years of Production:
Year of Discovery: 1904
Discovery Method:
Discoverer:
Site Commodity Types: Non-metallic
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MAS migration
Last Deposit Modification: 17-APR-2012 13:10:34
Last Table Modified: DEPOSITS - Update
Old MRDS #:
Old MAS #: 0560230101
Possible Dupes:

Name Information:

Name	Status
South Ridges Combined	Current
Commissary Ridge	Contains
South Ridges	Contains
Top of the World Mine	Contains
South Mountain Mine	Contains
Absaroka Ridge	Contains
South Ridges #1	Contains
South Ridges #2	Contains
South Ridges #3	Contains
South Ridges #4	Contains

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Phosphorus-Phosphates - (P)	Non-metallic	Primary				
Uranium - (U)	Energy	Tertiary				

Ownership Information:

Owner Name: U.S. Government
Ownership Type: Owner
Pct: 95
Year of Information: 1980
Beginning Year:
Ending Year:
Company ID: 4801290
Home Office Location: Dist Of Columbia

Owner Name: State Of Wyoming
Ownership Type: Owner
Pct: 5
Year of Information: 1978
Beginning Year:
Ending Year:
Company ID: 4801290
Home Office Location: Wyoming

Type of Mineral Holdings:

Line	Holding Type
1	Other

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: NAD27
Latitude: N-42-13-0 42.2167
Longitude: W-110-36-0 -110.6
WGS 84 Latitude: 42.2167
WGS 84 Longitude: -110.6
UTM Zone: 12N **Northing:** 4673696 **Easting:** 533015
Point of Reference: Ore Body
Location Accuracy: 10000
Relative Position:
Elevation: 2440m

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 026 N
Range: 116 W
Section: 27
Fractional Sections:

Mining Districts:

Line	District Name
1	Western Phosphate

Land Status Information:

Line	Land Status	Administrative Area
1	Mixed	

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Preston	0250000	ID	250k Topo Map
USGS	4200n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Fontenelle Reservoir	0100000	WY	100k Topo Map
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Wyoming Base 77	0048000	WY	48k Planimetric Map
USGS	Cokeville	0125000	WY	125k - 30-Minute Map
USGS	Fontenelle Basin	0024000	WY	24k Graphic Oq
USGS	Fontenelle Basin	0024000	WY	24k Topo Map
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Management Status Map
USGS	Geologic Map And Structure Sections Of The Cokeville 30 Minute Quadrangle	0062500	WY	Misc Geologic Investigation

Model Type:

USGS Number: 34c **BC Number:** F07 **MK3 Number:**
Model Name: Phosphate, upwelling type

Orebody Information:

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 50 M
Depth to Top: 50 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 1
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Secondary mode of Origin : RESIDUAL CONCENT
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 0
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 3
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 4
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5

Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 5
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 6000 M
Depth to Top: 1000 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 6
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 30
Avg. Thick. Unconsol. Mat. : 100
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 30000 M
Depth to Top: 2300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 7
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 1524
Avg. Thick. Unconsol. Mat. : 300
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: 2000 HA **Length:** **Width:**
Depth to Top: **Depth to Bottom:** **Thickness:**
Strike: **Dip:** **Plunge:**

MAS Matrix: Total Surface Area (HA) : 2000
Date of Last Modification : 910418

Material/Minerals:

Ore/Gangue	Material
Unknown	Apatite
Unknown	Calcite
Unknown	Dolomite
Unknown	Feldspar
Unknown	Fluorite
Unknown	Gypsum
Unknown	Illite
Unknown	Kaolinite
Unknown	Limonite
Unknown	Montmorillonite
Unknown	Pyrite
Unknown	Quartz
Unknown	Sphene
Unknown	Tourmaline
Unknown	Zircon

Resource Information:

Year: 1963 **Line:** 1
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred: 1,069,799,999
Total Resources: 1,069,799,999
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	18	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1963 **Line:** 2
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred: 159,100,000
Total Resources: 159,100,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	24	wt-pct			
H2O	Water, Free	0	wt-pct			

Production Information:

Year: 1949 **Rec:** 1 **Entry Type:** C
Cumulative Period: 1948-1949
Mined:
Remarks/References:
Accuracy:
Original Entry: One Mine Produced In 1948-49 8000 Short Tons Ore

Workings Information:

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 95.9
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 14.85
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 95.9
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 20.29
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M
Additional Information:
MAS Development Schedule #: 1
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : OVERHAND SHRINKAGE 10-67
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : SUPPORTING
Mine Support Chars. : POST, HEADBOARD, CAPS, ROOF BOLTS
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 18.01
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M
Additional Information:
MAS Development Schedule #: 1
Mining Record # : 5
Status of Mining Method : PROPOSED
Mining Method : OVERHAND SHRINKAGE 10-67
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : SUPPORTING
Mine Support Chars. : POST, HEADBOARD, CAPS, ROOF BOLTS
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 18.01

Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M
Additional Information:
MAS Development Schedule #: 2
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : UNSUPPORTING NO FLOW
Mine Support Chars. : TIMBER
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 41.58
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M
Additional Information:
MAS Development Schedule #: 2
Mining Record # : 5
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : UNSUPPORTING NO FLOW
Mine Support Chars. : TIMBER
Number of Shafts : 1
Length of Inclines (m) : 0

Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 42.44
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Reporters:

Reporter	Report Date	Affiliation
B,D,D,S,Ww (R)	30-JUL-1997	U.S. Bureau of Mines
Drescher, Theodore A. (R)	24-APR-1995	U.S. Bureau of Mines
MAS records 0560230182-185 (newMRDS 10206042, 10143086, 101335539, 10206062)		

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230101	
MSHA	MSHA	Mine Safety and Health Administration	4801290	
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230182	=newMRDS 10206042, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230183	=newMRDS 10143086, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230184	=newMRDS 10133539, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230185	=newMRDS 10206062, merged and deleted.

Comments:

Category	Line	Comment
Deposit	1	THE NORTHEASTERN PORTION OF THE DEPOSIT EXTENDS INTO SUBLETTE COUNTY. DOMAIN - LAND CLASSIFICATION IS AS FOLLOWS WITH APPROXIMATE PERCENTAGES OF TOTAL OUTCROP AREA IN EACH CATEGORY SHOWN IN PARENTHESES: NATIONAL FOREST LAND (55), U.S. BUREAU OF LAND

		MANAGEMENT LAND (20), POTENTIALLY UNAVAILABLE ROADLESS AREA REVIEW AND EVALUATION (RARE II) LAND (20), AND STATE OF WYOMING LAND (5).
Deposit	2	THIS MINERALS AVAILABILITY SYSTEM EVALUATION WAS DONE AS PART OF A 1980 STUDY OF UTAH AND WYOMING PHOSPHATE DEPOSITS BY THE INTERMOUNTAIN FIELD OPERATIONS CENTER, DENVER, COLORADO.
Economic Factors	1	Mining and beneficiation costs for each proposed operation were obtained by applying one of 34 basic mine models and 5 basic mill models developed for evaluating Utah and Wyoming phosphate deposits. Site-specific cost adjustments were made for land acquisition, infrastructure, unusual haulage distance to mill, the presence of multiple beds requiring mining of waste, and mill feed grade and recovery. All costs are in January 1980 dollars. The schedule of costs is based on the assumption that each proposed operation will be independently developed as soon as technically possible after the official January 1979 base date for the current phosphate study. Thus, land acquisition, exploration, and infrastructure capital costs are assumed to begin in 1979. Mine and mill capital costs include a contingency allowance of 15 percent of all other capital costs except working capital. Mine and mill working capital is estimated at 60 days of operating cost. A Bureau costing manual (bibliography data set ref. I030) was used to estimate surface and underground mine exploration, development, reclamation, plant, and equipment capital costs; underground mine operating costs; capital and operating costs for the calcining-hydration mill (if used) and for the flotation sections of other mills; costs of transporting products from proposed mills to existing final processing plants; and access road construction cost. Surface mine operating costs are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), and others (U.S. office of audit and investigation) for Idaho phosphate mines in 1976 and 1977. Infrastructure capital costs assigned to each proposed mine consist of only those railroad, transmission line, and access road costs which are needed for development of each mine. Railroad cost is estimated by the Richardson rapid construction cost estimating system (bibliography data set ref. I020). Transmission line cost is estimated from typical industry costs (A.W. Watts, 1980, Water and Power Resources Services, personal communication). Access road costs are estimated by using the capital and operating cost estimating handbook (bibliography data set ref. I030). Land acquisition costs are based on typical competitive bids for leases in southeastern Idaho, adjusted for specific deposit grade and thickness. Lease rentals and royalties are based on current rates for federal leases in the western phosphate field. Capital and operating costs for all mills, excepting the calcination-hydration mill (if used) and flotation sections of other mills, are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), from costs given for a sizing and calcining mill described by de Voto, et al. (bibliography data set ref. R030), vol. 2, appendix d. Site-specific cost adjustments for mill feed grade and recovery are made, using relative cost factors calculated from average cost and recovery curves for altered and unaltered ores (bibliography data set ref. I010).
Geology	1	THE PHOSPHORIA FORMATION IS SUBDIVIDED INTO FIVE MEMBERS BY MCKELVEY (BIBLIOGRAPHY REF. L010), TWO OF WHICH (THE MEADE PEAK AND RETORT MEMBERS) CONTAIN SIGNIFICANT PHOSPHATE DEPOSITS. IN UTAH AND SOUTHWESTERN WYOMING, THE MEADE PEAK MEMBER, AND IN CENTRAL AND NORTHWESTERN WYOMING, THE RETORT MEMBER CONTAIN THE DEPOSITS OF POTENTIAL INTEREST. THE PARK CITY FORMATION OF UTAH AND CENTRAL WYOMING AND THE SHEDHORN SANDSTONE OF NORTHWESTERN WYOMING ARE STRATIGRAPHIC EQUIVALENTS OF AND INTERTONGUE WITH THE PHOSPHORIA FORMATION. THE PHOSPHORIA FORMATION AND EQUIVALENT FORMATIONS ARE UNDERLAIN BY EITHER THE TENSLEEP SANDSTONE, WEBER QUARTZITE, WELLS FORMATION, OR DIAMOND CREEK SANDSTONE AND ARE OVERLAIN BY EITHER THE

		WOODSIDE OR DINWOODY FORMATIONS.
Names	1	OTHER NAMES:TOP OF THE WORLD MINE, SOUTH MNT. MINE-COMMISARY RIDGE, ABSAKORA RIDGE.
Ownership	1	PHOSPHATE LANDS MAY BE LEASED FROM THE U.S. GOVERNMENT OR FROM THE STATE OF WYOMING. CURRENTLY, THERE ARE NO ACTIVE LEASES OR PROSPECTING PERMITS WITHIN THE AREA INCLUDED IN THIS DEPOSIT. THERE ARE NO PHOSPHATE MINERAL HOLDINGS IN THE DEPOSIT AREA.
Production	1	RECOVERIES IN THE YIELD DATA SET FOR TWO-PRODUCT MILLS ARE CALCULATED FROM THE TOTAL FEED TO THE MILL AND ARE NOT ACTUAL RECOVERIES WITHIN EACH ORE STREAM. WITHIN-ORE-STREAM RECOVERIES FOR TWO-PRODUCT MILLS PROPOSED IN THIS EVAL- UATION ARE 89.0 PERCENT FOR MILL K1, DEV SCH 1&2; 85% FOR MILL K3, DEV SCH 1; 72 PERCENT FOR MILL K3, DEV SCH 2; 83 PERCENT FOR MILL K5, DEV SCH 1; 62 PERCENT FOR MILL K5, DEV SCH 2. EXACT RECOVERIES USED IN CALCULATING PRODUCT OUTPUT TONNAGES FOR TWO PRODUCT MILLS PROPOSED IN THIS EVALUATION ARE 40.6743 PERCENT FOR PRODUCT A, DEV SCH 1&2; 48.3257% FOR PRODUCT F, DEV SCH 1&2; 59.7870 PERCENT FOR PRO- DUCT C, DEV SCH 1; 25.2130 PERCENT FOR PRODUCT H, DEV SCH 1; 50.6431 PERCENT FOR PRODUCT C, DEV SCH 2; 21.3569 PERCENT FOR PRODUCT H, DEV SCH 2; 40.2855 PERCENT FOR PRODUCT E, DEV SCH 1; 42.7145 PERCENT FOR PRODUCT J, DEV SCH 1; 30.0928 PERCENT FOR PRODUCT E, DEV SCH 2; 31.9072 PERCENT FOR PRODUCT J, DEV SCH 2.
Production	2	THE SOUTH MOUNTAIN MINE, ALSO KNOWN AS THE TOP OF THE WORLD MINE, OPERATED IN 1948-49, AND WAS REPORTED IN A 1950 PUBLICATION TO HAVE PRODUCED 8000 SHORT TONS OF ORE. IT IS NOT KNOWN IF THIS FIGURE REPRESENTS THE TOTAL PRODUCTION FROM THIS MINE, AND THE GRADE OF THE ORE PROD- UCED IS UNKNOWN. THE MINE CONSISTED OF AN OPEN PIT AND AN ADIT LOCATED NEAR THE CREST OF COMMISSARY RIDGE. THE DATE OF DISCOVERY OF THE SOUTH RIDGES PHOSPHATE IS APPROXIMATE.
Production	3	PRODUCTS A,B,C,D, AND E, WHERE PROPOSED IN THIS EVALUATION, ARE ACID GRADE PRODUCTS, AND PRODUCTS F,G,H,I, AND J, ARE FURNACE GRADE PRODUCTS. NOT ALL OF THESE PRODUCTS ARE USED IN THIS EVALUATION.
Reserve-Resource	1	PROPERTY HAS BEEN SPLIT INTO 4 SEPARATE DEPOSITS FOR SUPPLY ANALYSIS WITH SEQUENCE NOS. 0560230182, 0560230183, 0560230184, AND 0560230185 RESPECTIVELY NAMED SOUTH RIDGES NO 1, SOUTH RIDGES NO 2, SOUTH RIDGES NO 3, AND SOUTH RIDGES NO 4. REFER TO THESE RESPECTIVE DEPOSITS FOR THEIR SPECIFIC RESERVES AND OPERATING DATA [ABWilson, 8-feb-2010, deleted these extra 4 records. They are duplicate records for this deposit. They did not contain any information not already in this master record.]
Workings	1	ABBREVIATION FOR MINING DISTRICT: WEST. PHOSPHATE = WESTERN PHOSPHATE FIELD.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	MSHA M/NM MINE FILE 1-17-80	
Deposit	2	CLABAUGH, P. S., 1946, PERMIAN PHOSPHATE DEPOSITS OF MONTANA, IDAHO, WYOMING, AND UTAH: U.S. GEOLOGICAL SURVEY STRATEGIC MINER. INV. PRELIM. MAP 3-198, 1 SHEET.	
Deposit	3	GARRAND CORPORATION, 1975 (?), PHOSPHATE RESERVES OF SOUTHEASTERN IDAHO: U.S. DEPT. OF AGR. CONTRACT NO. 50-820, 1102 P.	
Deposit	4	HALE, L. A., ED., 1967, ANATOMY OF THE WESTERN PHOSPHATE FIELD: INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., 287 P., 3 PLATES.	
Deposit	5	Spangenberg, D.R., Carey, E.F., and Takosky, P.M., 1983, Minerals availability commodity directory on phosphate:	p. 395-

		U.S. Bureau of Mines Information Circular IC-8926, 678 p. 398.
Geology	4	CHENEY, T. M., SHELDON, R. P., WARING, R. G., AND WARNER, M. A., 1954, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING, 1951: U.S. GEOLOGICAL SURVEY CIRC. 324, 22 P.
Geology	8	COCHRAN, K. L., 1950, WYOMING PHOSPHATE INDUSTRY, IN WYO. GEOL. ASSOC. 5TH ANN. FIELD CONF., GUIDEBOOK (SW WYOMING), P. 133-135.
Geology	11	LANE, D. W., 1973, THE PHOSPHORIA AND GOOSE EGG FORMATIONS IN WYOMING: GEOLOGICAL SURVEY OF WYO., PRELIM. REPT. 12, 24 P.
Geology	14	ORIEL, S. S., 1963, PRELIMINARY GEOLOGIC MAP OF THE FORT HILL QUADRANGLE, LINCOLN COUNTY, WYOMING: U.S. GEOL. SURVEY OIL AND GAS INV. MAP OM-212.
Geology	17	ORIEL, S. S., 1969, GEOLOGY OF THE FORT HILL QUADRANGLE, LINCOLN COUNTY, WYOMING: U.S. GEOLOGICAL SURVEY PROF. PAPER 594-M, 38 P.
Geology	20	RUBEY, W. R., ORIEL, S. S., AND TRACEY, J. I., JR., 1975, GEOLOGY OF THE SAGE AND KEMMERER 15-MINUTE QUADRANGLES, LINCOLN COUNTY, WYOMING: U.S. GEOLOGICAL SURVEY PROF. PAPER 855, 18 P., 2 PLATES.
Geology	24	RUBEY, W. W., ORIEL, S. S., AND TRACEY, J. I., JR., 1976, GEOLOGIC MAP OF THE COKEVILLE 30-MINUTE QUADRANGLE, LINCOLN AND SUBLETTE COUNTIES, WYOMING: U.S. GEOL. SURVEY OPEN FILE REPT. 76-597, 1 PLATE.
Geology	28	SCHULTZ, A. R., 1914, GEOLOGY AND GEOGRAPHY OF A PORTION OF LINCOLN COUNTY, WYOMING: U.S. GEOLOGICAL SURVEY BULL. 543, P. 43-45, 131-134.
Geology	31	SHELDON, R. P., CRESSMAN, E. R., CARSWELL, L. D., SMART, R. A., 1954, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING, 1952: U.S. GEOLOGICAL SURVEY CIRC. 325, 24P.
Geology	35	U.S. GEOLOGICAL SURVEY, 1954, OGDEN, UTAH; WYOMING, 1-DEGREE BY 2-DEGREE TOPOGRAPHIC MAP: U.S. GEOL. SURVEY, 1:250,000-SCALE MAP, 1 SHEET.
Geology	38	U.S. GEOLOGICAL SURVEY, 1955, PRESTON, IDAHO; WYOMING, 1-DEGREE BY 2-DEGREE TOPOGRAPHIC MAP: U.S. GEOL. SURVEY, 1:250,000-SCALE MAP, 1 SHEET.
Geology	41	U.S. GEOLOGICAL SURVEY, 1960, MINERAL AND WATER RESOURCES OF WYOMING: U.S. CONGRESS - SENATE, DOC. 76. P. 14-16, 145-147.
Geology	42	MCKELVEY, V. E., 1959, THE PHOSPHORIA, PARK CITY, AND SHEDHORN FORMATIONS IN THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY PROF. PAPER 313-A, P. 1-47, 3 PLATES.
Geology	43	GULBRANDSEN, R. A., 1967, SOME COMPOSITIONAL FEATURES OF PHOSPHORITES OF THE PHOSPHORIA FORMATION, IN INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., P. 99-102.
Ownership	1	U.S. BUREAU OF LAND MANAGEMENT, 1978, STATE OF WYOMING LAND STATUS: U.S. BUR. OF LAND MANAGEMENT MAP, 1:500,000-SCALE, 1 SHEET
Production	1	DUNCAN, W. E., AND FISK, H. G., 1957, CENTRAL WYOMING PHOSPHATE ROCK - CHARACTER, PROCESSING, AND ECONOMICS: UNIV. OF WYO. NAT. RES. RESEARCH INST. BULL. 6, 60 P.
Production	2	EBERL, E., 1970, BENEFICIATION OF CALCIUM PHOSPHATE BY CALCINATION, THE MATERIAL BALANCE: RUDARSKO - METALURSKI ZBORNIK, NO. 2-3, 1970, P. 275-283.
Production	3	GOKHALE, K. V. G. K., RAO, T. C., AND BISWAS, A. K., 1975, BENEFICIATION STUDIES ON A HIMALAYAN LEAN PHOSPHATE DEPOSIT

		WITH CALCAREOUS GANGUE, IN SEMINAR ON BENEFICIATION OF LEAN PHOSPHATE WITH CARBONATE GANGUE, 11TH INTERNAT. MINERALS PROCESSING CONGRESS, KAGLIARI, ITALY, APRIL 23-24, 1975, P. 53-54.
Production	4	GOOD, P. C., 1976, BENEFICIATION OF UNWEATHERED INDIAN CALCAREOUS PHOSPHATE ROCK BY CALCINATION AND HYDRATION: U.S. BUREAU OF MINES REPT. INV. 8154, 17 P.
Production	5	NEUBERGER, R., 1968, PHOSPHATE ROCK CALCINATION IN ISRAEL: PHOSPHORUS AND POTASSIUM, NO. 35, MAY/JUNE 1968, P. 11-21.
Production	6	RULE, A. R., DAHLIN, D. C., AND FERGUS, A. J., 1978, FLOTATION OF CARBONATE AND SILICATE MINERALS FROM PARTIALLY ALTERED PHOSPHATE ROCK OF THE PHOSPHORIA FORMATION, PAPER PRESENTED AT ISMA TECHNICAL/ECON. CONF.; ORLANDO, FLA., OCT. 23-27, 1979, 11 P.
Production	7	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1977, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES, PAPER PRESENTED AT S.M.E. FALL MEETING AND EXHIBIT, ST. LOUIS MO., OCT. 19-21, 1977, 17 P.
Production	8	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1978, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES: MIN. ENG., JAN. 1978, P. 37-40.
Reference	1	HARRIS, R. A., DAVIDSON, D. F., AND ARNOLD, B. P., 1954, BIBLIOGRAPHY OF THE GEOLOGY OF THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY BULL. 1018, 89 P.
Reserve-Resource	1	COFFMAN, J. S., AND SERVICE, A. L., 1967, AN EVALUATION OF THE WESTERN PHOSPHATE INDUSTRY AND ITS RESOURCES - PART 4, WYOMING AND UTAH: U.S. BUREAU OF MINES REPT. INV. 6934, 158 P.
Reserve-Resource	2	DE VOTO, R. H., AND STEVENS, D. N., ED., 1979, URANIFEROUS PHOSPHATE RESOURCES AND TECHNOLOGY AND ECONOMICS OF URANIUM RECOVERY FROM PHOSPHATE RESOURCES, UNITED STATES AND FREE WORLD: SUBCONTRACT 78-177-S TO DEPT. OF ENERGY CONTRACT 50-54-5903 (BENDIX FIELD ENG. CORP.) BY EARTH SCIENCES INC., 1396 P. PLUS PLATES.
Reserve-Resource	3	SHELDON, R. P., 1963, PHYSICAL STRATIGRAPHY AND MINERAL RESOURCES OF PERMIAN ROCKS IN WESTERN WYOMING: U.S. GEOLOGICAL SURVEY PROF. PAPER 313-B, P. 49-273, PLATES.

Groupings:

Rec	Grouping Name
1	WLCI

File Room:

SAM run*	BOM PEFR*	Consultant report	Maps/Sketches	Other images	Articles	Prod. Records	Misc. Data
Y			Y		Y		Y

Misc. Data Comment:

* Items in these columns are proprietary/confidential (for internal USGS only). Items in other columns may be, but need to be looked at on a record by record basis.

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10254118 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Salt River Range Combined

Site Overview:

Record Type: Deposit **Deposit Type:**
Development Status: Prospect **Operation Type:** Surface-Underground
Old MRDS #: **Old MAS #:** 0560230030
Validated:

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Phosphorus-Phosphates - (P)

General Site Information:

Record Type: Deposit **Deposit Type:**
Development Status: Prospect **Operation Type:** Surface-Underground
Plant Type: **Plant Identifier:**
Mining Method: Open Stope - Overhand **Milling Method:** Flotation
Year of First Production: **Year of Last Production:**
Years of Production:
Year of Discovery: **Discovery Method:**
Discoverer:
Site Commodity Types: Non-metallic **Significant:** N
Mineralized Area Name: **Location Problem:**
Record added: 12-MAR-2002 00:00:00 **Added By:** MAS migration
Last Deposit Modification: 17-APR-2012 12:57:08 **Last Table Modified:** BIB_REFERENCES - Insert
Old MRDS #: **Old MAS #:** 0560230030
Possible Dupes:

Name Information:

Name	Status
Salt River Range Combined	Current
Strawberry Creek - Willow Creek	Previous
Swift Creek - Cottonwood Creek	Previous
Southern Salt River Range	Previous
Salt River Range	Previous
Salt River Range #1 -#4	Previous

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Phosphorus-Phosphates - (P)	Non-metallic	Primary				
Uranium - (U)	Energy	Tertiary				
Water, Free - (H2O)	Non-metallic	Tertiary				

Ownership Information:

Owner Name: U.S. Government
Ownership Type: Owner
Pct:
Year of Information: 1979
Beginning Year:
Ending Year:
Company ID:
Home Office Location: Dist Of Columbia

Owner Name: American Nuclear Corp.
Ownership Type: Unknown
Pct:
Year of Information: 1979
Beginning Year:
Ending Year:
Company ID:
Home Office Location: Wyoming

Type of Mineral Holdings:

Line	Holding Type

1	Located Claim
2	Other

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: NAD27
Latitude: N-42-43-0 42.7167
Longitude: W-110-49-0 -110.8167
WGS 84 Latitude: 42.7167
WGS 84 Longitude: -110.8167
UTM Zone: 12N **Northing:** 4729153 **Easting:** 515012
Point of Reference: Ore Body
Location Accuracy: 10000
Relative Position:
Elevation: 2740m

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 032 N
Range: 117 W
Section:
Fractional Sections:

Mining Districts:

Line	District Name
1	Western Phosphate

Land Status Information:

Line	Land Status	Administrative Area
1	Mixed	

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Afton Quad And Part Of The Big Piney Quad Geologic Map	0062500	WY	Regional Geology
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Wyoming Base 74	0048000	WY	48k Planimetric Map
USGS	Afton	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Afton	0100000	WY	100k Topo Map
USGS	Red Top Mountain	0024000	WY	24k Topo Map
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	4230n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Afton	0125000	WY	125k - 30-Minute Map
USGS	Afton	0100000	WY	Blm Surface Management Status Map
USGS	Preston	0250000	ID	250k Topo Map

Model Type:

USGS Number: 34c **BC Number:** F07 **MK3 Number:**
Model Name: Phosphate, upwelling type

Orebody Information:

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 50 M
Depth to Top: 50 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 1
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Secondary mode of Origin : RESIDUAL CONCENT
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 0
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801030

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 50 M
Depth to Top: 50 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 2
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Secondary mode of Origin : RESIDUAL CONCENT
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 0
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801030

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix # : 3
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY

MAS Matrix:
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801030

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 4
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801030

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 6000 M
Depth to Top: 1000 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 6
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 30
Avg. Thick. Unconsol. Mat. : 100
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801030

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 30000 M
Depth to Top: 2300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 7
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 1524
Avg. Thick. Unconsol. Mat. : 300
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801030

Orebody Name:
Form:

Area:	2000 HA	**Length:**		**Width:**	
Depth to Top:		**Depth to Bottom:**		**Thickness:**	
Strike:		**Dip:**		**Plunge:**	
MAS Matrix:	Total Surface Area (HA) : 2000 Date of Last Modification : 910418				

Material/Minerals:

Ore/Gangue	Material
Unknown	Apatite
Unknown	Calcite
Unknown	Dolomite
Unknown	Feldspar
Unknown	Fluorite
Unknown	Gypsum
Unknown	Illite
Unknown	Kaolinite
Unknown	Limonite
Unknown	Montmorillonite
Unknown	Pyrite
Unknown	Quartz
Unknown	Sphene
Unknown	Tourmaline
Unknown	Zircon

Resource Information:

Year: 1967 **Line:** 1
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 353,900,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

*Contained commodity number is for this year only:
**Total of all production records flagged as best:

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	18	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 2
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 273,500,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

*Contained commodity number is for this year only:
**Total of all production records flagged as best:

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	24	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 3
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 10,900,000
Total Endowment:

Units: mt ore

Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	31	wt-pct			
H2O	Water, Free	0	wt-pct			

Workings Information:

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 93.7
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 11.27
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:

Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 2
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 95.9
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 14.79
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 93.7
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 15.43
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:

Overall Width:
Depth:
Additional Information:
MAS Development Schedule #: 2
Mining Record # : 2
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 95.9
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 20.5
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M
Additional Information:
MAS Development Schedule #: 1
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : SUPPORTING
Mine Support Chars. : POST, HEADBOARD, CAPS, ROOF BOLTS
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 26.2
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:

Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 4
Status of Mining Method : PROPOSED
Mining Method : ROOM AND PILLAR 10-34
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 75
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : SUPPORTING
Mine Support Chars. : POST, HEADBOARD, CAPS, ROOF BOLTS
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 16.53
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : UNSUPPORTING NO FLOW
Mine Support Chars. : TIMBER
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 27.79
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**

Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 4
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : UNSUPPORTING NO FLOW
Mine Support Chars. : TIMBER
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 35.23
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Reporters:

Reporter	Report Date	Affiliation
B,D,D,S,Ww (R)	11-OCT-1996	U.S. Bureau of Mines
Drescher, Theodore A. (R) 0560230171=10181582, 0560230172=10303630, 0560230173=10229988, and 0560230174=10206401.	24-APR-1995	U.S. Bureau of Mines
Wilson, Anna B. (E) merged and deleted 0560230171=10181582, 0560230172=10303630, 0560230173=10229988, and 0560230174=10206401.	08-FEB-2010	U.S. Geological Survey
Causey, J. Douglas (U) Added Model	15-DEC-2010	U.S. Geological Survey

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Other Databases:

Acronym	Database Name	Agency	Record ID	Note

MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230030	
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230171	=newMRDS 10181582, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230172	=newMRDS 10303630, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230173	=newMRDS 10229988, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230174	=newMRDS 10206401, merged and deleted.

Comments:

Category	Line	Comment
Deposit	1	THIS MINERALS AVAILABILITY SYSTEM EVALUATION WAS DONE AS PART OF A 1980 STUDY OF UTAH AND WYOMING PHOSPHATE DEPOSITS BY THE INTERMOUNTAIN FIELD OPERATIONS CENTER, DENVER, COLORADO. DOMAIN - ABOUT 90 PERCENT OF THE OUTCROP AREA IS CLASSIFIED AS ROADLESS AREA REVIEW AND EVALUATION (RARE II) RE- COMMENDED FOR NON-WILDERNESS, AND THE REMAINDER IS NATIONAL FOREST. PROPERTY HAS BEEN SPLIT INTO 4 SEPARATE DEPOSITS FOR SUPPLY ANALYSIS WITH SEQUENCE NOS. 0560230171, 0560230172, 0560230173, AND 0560230174, RESPECTIVELY NAMED SALT RIVER RANGE NO 1, SALT RIVER RANGE NO 2, SALT RIVER RANGE NO 3, AND SALT RIVER RANGE NO 4. REFER TO THESE RESPECTIVE DATA BASES FOR THE RESERVES AND MINING AND BENEFICIATION FOR EACH DEPOSIT.
Economic Factors	1	Mining and beneficiation costs for each proposed operation were obtained by applying one of 34 basic mine models and 5 basic mill models developed for evaluating Utah and Wyoming phosphate deposits. Site-specific cost adjustments were made for land acquisition, infrastructure, unusual haulage distance to mill, the presence of multiple beds requiring mining of waste, and mill feed grade and recovery. All costs are in January 1980 dollars. The schedule of costs is based on the assumption that each proposed operation will be independently developed as soon as technically possible after the official January 1979 base date for the current phosphate study. Thus, land acquisition, exploration, and infrastructure capital costs are assumed to begin in 1979. Mine and mill capital costs include a contingency allowance of 15 percent of all other capital costs except working capital. Mine and mill working capital is estimated at 60 days of operating cost. A Bureau costing manual (bibliography data set ref. I030) was used to estimate surface and underground mine exploration, development, reclamation, plant, and equipment capital costs; underground mine operating costs; capital and operating costs for the calcining-hydration mill (if used) and for the flotation sections of other mills; costs of transporting products from proposed mills to existing final processing plants; and access road construction cost. Surface mine operating costs are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), and others (U.S. office of audit and investigation) for Idaho phosphate mines in 1976 and 1977. Infrastructure capital costs assigned to each proposed mine consist of only those railroad, transmission line, and access road costs which are needed for development of each mine. Railroad cost is estimated by the

		Richardson rapid construction cost estimating system (bibliography data set ref. I020). Transmission line cost is estimated from typical industry costs (A.W. Watts, 1980, Water and Power Resources Services, personal communication). Access road costs are estimated by using the capital and operating cost estimating handbook (bibliography data set ref. I030). Land acquisition costs are based on typical competitive bids for leases in southeastern Idaho, adjusted for specific deposit grade and thickness. Lease rentals and royalties are based on current rates for federal leases in the western phosphate field. Capital and operating costs for all mills, excepting the calcination-hydration mill (if used) and flotation sections of other mills, are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), from costs given for a sizing and calcining mill described by de Voto, et al. (bibliography data set ref. R030), vol. 2, appendix d. Site-specific cost adjustments for mill feed grade and recovery are made, using relative cost factors calculated from average cost and recovery curves for altered and unaltered ores (bibliography data set ref. I010).
Geology	1	THE PHOSPHORIA FORMATION IS SUBDIVIDED INTO FIVE MEMBERS BY MCKELVEY (BIBLIOGRAPHY REF. L010), TWO OF WHICH (THE MEADE PEAK AND RETORT MEMBERS) CONTAIN SIGNIFICANT PHOSPHATE DEPOSITS. IN UTAH AND SOUTHWESTERN WYOMING, THE MEADE PEAK MEMBER, AND IN CENTRAL AND NORTHWESTERN WYOMING, THE RETORT MEMBER CONTAIN THE DEPOSITS OF POTENTIAL INTEREST. THE PARK CITY FORMATION OF UTAH AND CENTRAL WYOMING AND THE SHEDHORN SANDSTONE OF NORTHWESTERN WYOMING ARE STRATIGRAPHIC EQUIVALENTS OF AND INTERTONGUE WITH THE PHOSPHORIA FORMATION. THE PHOSPHORIA FORMATION AND EQUIVALENT FORMATIONS ARE UNDERLAIN BY EITHER THE TENSLEEP SANDSTONE, WEBER QUARTZITE, WELLS FORMATION, OR DIAMOND CREEK SANDSTONE AND ARE OVERLAIN BY EITHER THE WOODSIDE OR DINWOODY FORMATIONS.
Names	1	OTHER NAMES:STRAWBERRY CREEK-WILLOW CREEK, SWIFT CREEK, COTTON- WOOD CREEK, SOUTHERN SALT RIVER RANGE.
Ownership	1	BECAUSE AMERICAN NUCLEAR CORP. HOLDS UNPATENTED VANADIUM CLAIMS ON PHOSPHATE BEDS IN THE DEPOSIT AREA, IT IS NOT CLEAR WHETHER THE PHOSPHATE MINERAL RIGHTS ARE HELD BY THE U.S.GOVERNMENT OR BY AMERICAN NUCLEAR CORP. BECAUSE THE LEGALITIES OF MINERAL RIGHTS OWNERSHIP ARE NOT CLEAR IN THIS CASE, NO PERCENTAGES OF OWNERSHIP ARE GIVEN. THE FEDERAL GOVERNMENT DOES, HOWEVER, HOLD THE MINERAL RIGHTS TO THE MAJORITY OF THE PHOSPHATE OUTCROP IN THE DEPOSIT AREA, AND THIS OUTCROP IS CONSIDERED LEASABLE. THE RARE II CLASSIFICATION OF MOST OF THIS OUTCROP, HOWEVER, INTERJECTS SOME UNCERTAINTY INTO FUTURE PHOSPHATE LEASABILITY. CURRENTLY, THERE ARE NO ACTIVE PHOSPHATE LEASES OR PROSPECTING PERMITS IN THE DEPOSIT AREA.
Production	1	RECOVERIES IN THE YIELD DATA SET FOR TWO-PRODUCT MILLS ARE CALCULATED FROM THE TOTAL FEED TO THE MILL AND ARE NOT ACTUAL RECOVERIES WITHIN EACH ORE STREAM. WITHIN-ORE-STREAM RECOVERIES FOR TWO-PRODUCT MILLS PROPOSED IN THIS EVAL- UATION ARE 88 PERCENT FOR MILL K1, DEV SCH 1&2; 91.0 PERCENT FOR MILL K2, DEV SCH 1&2. EXACT RECOVERIES USED IN CALCULATING PRODUCT OUTPUT TONNAGES FOR TWO PRODUCT MILLS PROPOSED IN THIS EVALUATION ARE 41.4151 PERCENT FOR PRODUCT A, DEV SCH 1&2; 46.5849% FOR PRODUCT F, DEV SCH 1&2; 59.5412 PERCENT FOR PRODUCT B, DEV SCH 1&2; 31.4588 PERCENT FOR PRODUCT G, DEV SCH 1&2.
Production	2	PRODUCTS A,B,C,D, AND E, WHERE PROPOSED IN THIS EVALUATION, ARE ACID GRADE PRODUCTS, AND PRODUCTS F,G,H,I, AND J, ARE FURNACE GRADE PRODUCTS. NOT ALL OF THESE PRODUCTS ARE USED IN THIS EVALUATION.
Reserve-Resource	1	ALL ADIT DATA FOR THE ABOVE MAS PROPERTIES HAS BEEN COMBINED INTO THIS PROPERTY FILE. ADIT LISTINGS FOR THE ABOVE FILES WERE DELETED. [Apparently these records were not purged from the database earlier. A.B. Wilson (Feb. 8, 2010) deleted 0560230171=10181582, 0560230172=10303630, 0560230173=10229988, and 0560230174=10206401 for Salt River Range #1-#4.

Workings	1	ABBREVIATION FOR MINING DISTRICT: WEST. PHOSPHATE = WESTERN PHOSPHATE FIELD.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	CLABAUGH, P. S., 1946, PERMIAN PHOSPHATE DEPOSITS OF MONTANA, IDAHO, WYOMING, AND UTAH: U.S. GEOLOGICAL SURVEY STRATEGIC MINER. INV. PRELIM. MAP 3-198, 1 SHEET.	
Deposit	2	GARRAND CORPORATION, 1975 (?), PHOSPHATE RESERVES OF SOUTHEASTERN IDAHO: U.S. DEPT. OF AGR. CONTRACT NO. 50-820, 1102 P.	
Deposit	3	HALE, L. A., ED., 1967, ANATOMY OF THE WESTERN PHOSPHATE FIELD: INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., 287 P., 3 PLATES.	
Deposit	5	Spangenberg, D.R., Carey, E.F., and Takosky, P.M., 1983, Minerals availability commodity directory on phosphate: U.S. Bureau of Mines Information Circular IC-8926, 678 p.	p. 379-383.
Geology	4	LINES, G. C., AND GLASS, W. R., 1975, WATER RESOURCES OF THE THRUST BELT OF WESTERN WYOMING: U.S. GEOLOGICAL SURVEY HYDROL. INV. ATLAS MAP HA-539.	
Geology	7	MANSFIELD, G. R., 1916, A RECONNAISSANCE FOR PHOSPHATE IN THE SALT RIVER RANGE, WYOMING, IN CONTRIBUTIONS TO ECONOMIC GEOLOGY - 1915, PART I: U.S. GEOLOGICAL SURVEY BULL. 620, P. 331-349.	
Geology	11	MANSFIELD, G. R., 1927, GEOGRAPHY, GEOLOGY, AND MINERAL RESOURCES OF PART OF SOUTHEASTERN IDAHO: U.S. GEOL. SURVEY PROF. PAPER 152, 453 P., 12 PLATES.	
Geology	14	MCKELVEY, V. E., SWANSON, R. W., AND SHELDON, R. P., 1953, PHOSPHORIA FORMATION IN SOUTHEASTERN IDAHO AND WESTERN WYOMING, IN INTERMOUNTAIN ASSOC. OF PETROLEUM GEOL. GUIDEBOOK, 4TH ANN. FIELD CONF., P. 41-47.	
Geology	18	MCKELVEY, V. E., 1946, PRELIMINARY REPORT ON STRATIGRAPHY OF THE PHOSPHATIC SHALE MEMBER OF PHOSPHORIA FORMATION IN WESTERN WYOMING, SOUTHEASTERN IDAHO, AND NORTHERN UTAH: U.S. GEOLOGICAL SURVEY UNPUB. REPT., 162 P. OBTAINED FROM U.S. GEOLOGICAL SURVEY, CONSERV. DIV. OFFICE IN ROCK SPRINGS, WYO.	
Geology	24	RUBEY, W. W., 1958, GEOLOGY OF THE BEDFORD QUADRANGLE, WYOMING: U.S. GEOLOGICAL SURVEY GEOL. QUADRANGLE MAP GQ-109, scale 1:24,000.	
Geology	27	RUBEY, W. W., 1973, GEOLOGIC MAP OF THE AFTON QUADRANGLE AND PART OF THE BIG PINEY QUADRANGLE, LINCOLN SUBLETTE COUNTIES, WYOMING: U.S. GEOLOGICAL SURVEY MISC. INV. MAP I-686.	
Geology	31	SCHULTZ, A. R., 1918, A GEOLOGIC RECOINNAISSANCE FOR PHOS PHATE AND COAL IN SOUTHEASTERN IDAHO AND WESTERN WYOMING: U.S. GEOLOGICAL SURVEY BULL. 680, 84 P.	
Geology	34	SHELDON, R. P., WARING, R. G., WARNER, M. A., SMART, R. A., 1953, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING, 1949-50: U.S. GEOLOGICAL SURVEY CIRC. 307, 45 P.	
Geology	38	SHELDON, R. P., 1957, PHYSICAL STRATIGRAPHY OF THE PHOSPHORIA FORMATION IN NORTHWESTERN WYOMING: U.S. GEOL. SURVEY BULL. 1042-E, P. 105-185, PLATES.	
Geology	41	U.S. GEOLOGICAL SURVEY, 1955, PRESTON, IDAHO; WYOMING, 1-DEGREE BY 2-DEGREE TOPOGRAPHIC MAP: U.S. GEOL. SURVEY	

		1:250,000-SCALE MAP, 1 SHEET.
Geology	47	SWANSON, R. W., MCKELVEY, V. E., AND SHELDON, R. P., 1953, PROGRESS REPORT ON INVESTIGATIONS OF WESTERN PHOSPHATE DEPOSITS: U.S. GEOLOGICAL SURVEY CIRC. 297, 16 P.
Geology	50	U.S. GEOLOGICAL SURVEY, 1955, DRIGGS, IDAHO; WYOMING, 1-DEGREE BY 2-DEGREE TOPOGRAPHIC MAP: U.S. GEOL. SURVEY, 1:250,000-SCALE MAP, 1 SHEET.
Geology	53	U.S. GEOLOGICAL SURVEY, 1960, MINERAL AND WATER RESOURCES OF WYOMING: U.S. CONGRESS - SENATE, DOC. 76, P. 14-16, 145-147.
Geology	54	MCKELVEY, V. E., 1959, THE PHOSPHORIA, PARK CITY, AND SHEDHORN FORMATIONS IN THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY PROF. PAPER 313-A, P. 1-47, 3 PLATES.
Geology	55	GULBRANDSEN, R. A., 1967, SOME COMPOSITIONAL FEATURES OF PHOSPHORITES OF THE PHOSPHORIA FORMATION, IN INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., P. 99-102.
Ownership	1	U.S. BUREAU OF LAND MANAGEMENT, 1978, STATE OF WYOMING LAND STATUS: U.S. BUR. OF LAND MANAGEMENT MAP, 1:500,000-SCALE, 1 SHEET.
Production	1	DUNCAN, W. E., AND FISK, H. G., 1957, CENTRAL WYOMING PHOSPHATE ROCK - CHARACTER, PROCESSING, AND ECONOMICS: UNIV. OF WYO. NAT. RES. RESEARCH INST. BULL. 6, 60 P.
Production	2	EBERL, E., 1970, BENEFICIATION OF CALCIUM PHOSPHATE BY CALCINATION, THE MATERIAL BALANCE: RUDARSKO - METALURSKI ZBORNIK, NO. 2-3, 1970, P. 275-283.
Production	3	GOKHALE, K. V. G. K., RAO, T. C., AND BISWAS, A. K., 1975, BENEFICIATION STUDIES ON A HIMALAYAN LEAN PHOSPHATE DEPOSIT WITH CALCAREOUS GANGUE, IN SEMINAR ON BENEFICIATION OF LEAN PHOSPHATE WITH CARBONATE GANGUE, 11TH INTERNAT. MINERALS PROCESSING CONGRESS, KAGLIARI, ITALY, APRIL 23-24, 1975, P. 53-54.,
Production	4	GOOD, P. C., 1976, BENEFICIATION OF UNWEATHERED INDIAN CALCAREOUS PHOSPHATE ROCK BY CALCINATION AND HYDRATION: U.S. BUREAU OF MINES REPT. INV. 8154, 17 P.
Production	5	NEUBERGER, R., 1968, PHOSPHATE ROCK CALCINATION IN ISRAEL: PHOSPHORUS AND POTASSIUM, NO. 35, MAY/JUNE 1968, P. 11-21.
Production	6	RULE, A. R., DAHLIN, D. C., AND FERGUS, A. J., 1978, FLOTATION OF CARBONATE AND SILICATE MINERALS FROM PARTIALLY ALTERED PHOSPHATE ROCK OF THE PHOSPHORIA FORMATION, PAPER PRESENTED AT ISMA TECHNICAL/ECON. CONF.; ORLANDO, FLA., OCT. 23-27, 1979, 11 P.
Production	7	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1977, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES, PAPER PRESENTED AT S.M.E. FALL MEETING AND EXHIBIT, ST. LOUIS MO., OCT. 19-21, 1977, 17 P.
Production	8	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1978, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES: MIN. ENG., JAN. 1978, P. 37-40.
Reference	1	HARRIS, R. A., DAVIDSON, D. F., AND ARNOLD, B. P., 1954, BIBLIOGRAPHY OF THE GEOLOGY OF THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY BULL. 1018, 89 P.
Reserve-Resource	1	COFFMAN, J. S., AND SERVICE, A. L., 1967, AN EVALUATION OF THE WESTERN PHOSPHATE INDUSTRY AND ITS RESOURCES - PART 4, WYOMING AND UTAH: U.S. BUREAU OF MINES REPT. INV. 6934, 158 P.
Reserve-Resource	2	DE VOTO, R. H., AND STEVENS, D. N., ED., 1979, URANIFEROUS PHOSPHATE RESOURCES AND TECHNOLOGY AND ECONOMICS OF URANIUM RECOVERY FROM PHOSPHATE RESOURCES, UNITED STATES AND FREE

WORLD: SUBCONTRACT 78-177-S TO DEPT. OF ENERGY CONTRACT 50-54-5903 (BENDIX FIELD ENG. CORP.) BY EARTH SCIENCES INC., 1396 P. PLUS PLATES.

Groupings:

Rec	Grouping Name
1	WLCI

File Room:

SAM run*	BOM PEFR*	Consultant report	Maps/Sketches	Other images	Articles	Prod. Records	Misc. Data
Y			Y		Y		Y

Misc. Data Comment:

* Items in these columns are proprietary/confidential (for internal USGS only). Items in other columns may be, but need to be looked at on a record by record basis.

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10279117 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: South Mountain Mine

Site Overview:

Record Type: Site **Deposit Type:**
Development Status: Past Producer **Operation Type:** Surface-Underground
Old MRDS #: **Old MAS #:** 0560230100
Validated:

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Phosphorus-Phosphates - (P)

General Site Information:

Record Type:	Site	**Deposit Type:**	
Development Status:	Past Producer	**Operation Type:**	Surface-Underground
Plant Type:		**Plant Identifier:**	
Mining Method:	Unknown	**Milling Method:**	
Year of First Production:		**Year of Last Production:**	
Years of Production:	1948-1949		
Year of Discovery:		**Discovery Method:**	
Discoverer:			
Site Commodity Types:	Non-metallic	**Significant:**	N
Mineralized Area Name:		**Location Problem:**	
Record added:	12-MAR-2002 00:00:00	**Added By:**	MAS migration
Last Deposit Modification:	14-MAY-2012 07:23:47	**Last Table Modified:**	ROCKS - Update
Old MRDS #:		**Old MAS #:**	0560230100
Possible Dupes:			

Name Information:

Name	Status
South Mountain Mine	Current
Top of the World Mine	Previous
Commisary Ridge	Previous

Commodities:

Commodity	Commodity Type	Importance	Estimated		Calculated	
			Resource Size	Production Size	Resource Size	Production Size
Uranium - (U)	Energy	Secondary				
Phosphorus-Phosphates - (P)	Non-metallic	Primary				

Analytical Data:

Line	Analytical Data
1	Sample from a pit in Sec. 9 contained 33.9% B.P.I.

Ownership Information:

Owner Name: Phosphate Fertilizer, Inc
Ownership Type: Operator
Pct:
Year of Information: 1966
Beginning Year: 1948
Ending Year: 1949
Company ID:
Home Office Location: Kemmerer, WY

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Ogden

Geo-Coordinate Information:

Datum of Entry: NAD27
Latitude: N-41-58-55 41.98185
Longitude: W-110-34-50 -110.5806
WGS 84 Latitude: 41.98185
WGS 84 Longitude: -110.5806
UTM Zone: 12N **Northing:** 4647632 **Easting:** 534744
Point of Reference: Claim
Location Accuracy: 500
Relative Position: Within 10 m of main adit shown on topo in SE corner of Sec. 9. Additional workings nearby should be included as subsidiary locations.
Elevation: 2600m

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 023 N
Range: 116 W
Section: 9; 16
Fractional Sections: SE; NE

State: Wyoming **Meridian:** 6th Principal
Township: 023 N
Range: 116W
Section: 9
Fractional Sections: S2 of SE4

Land Status Information:

Line	Land Status	Administrative Area
1	State	

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Kemmerer	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Sublet	0024000	WY	24k Topo Map, Provisional
USGS	Kemmerer	0100000	WY	100k Topo Map
USGS	Kemmerer Ne	0024000	WY	24k Graphic Oq
USGS	Ogden	0250000	UT	250k Topo Map
USGS	Ogden 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	UT	Regional Geology
USGS	Kemmerer Quad Geologic Map	0100000	WY	Regional Geology
USGS	Kemmerer Quad Surficial Materials Map	0100000	WY	Regional Geology
USGS	Ogden Land Use And Land Cover Maps	0250000	UT	250k Lulc - Composite (Graphic)
USGS	4130n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Kemmerer	0062500	WY	62k Topo Map
USGS	Kemmerer	0100000	WY	Blm Surface Management Status

				Map
USGS	Kemmerer Quadrangle, Swelling Clays Map	0100000	WY	Regional Geology
USGS	Ogden Quad Leasable Mineral And Waterpower Land Classification Map	0250000	UT	Mineral Resources
USGS	Wyoming Base 104	0048000	WY	48k Planimetric Map

Rock Information:

Rock Type:	Host	**Rock Unit Name:**	Meade Peak Member (phosphatic shale) of Phosphoria Formation
First Order Name:	Sedimentary Rock	**Second Order Name:**	Clastic Sedimentary Rock
Third Order Name:	Shale	**Fourth Order Name:**	
Lowest Order Name:	Shale	**Additional Descriptive Text:**	

Rock Age:

Age Type:	Host Rock	**Youngest Age:**	Permian	**Oldest Age:**	Permian	
Chronological Age:		**Plus/Minus:**		**Method:**		**Media:**

Reporters:

Reporter	Report Date	Affiliation
South Dakota School of Mines (R)	01-DEC-1983	U.S. Bureau of Mines
Wilson, Anna B. (E)	14-JUL-2010	U.S. Geological Survey
Site visit 7-aug-2010. Site has been almost completely reclaimed and long since abandoned.		

Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230100	

MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230081	not found in newMRDS.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230142	=newMRDS 10278937, merged and deleted.

Comments:

Category	Line	Comment
Deposit	1	Mine is a Phosphate deposit but there are reports of uraniferous phosphate in the Meade Peak Member of the Phosphoria Formation.
General	1	Entire area has been completely reclaimed, probably in the past decade (as of site visit by Wilson and Heran, USGS, 7-Aug-2010). Only hints remain of the dump at the adit on the topo. Upper slopes have been graded and reseeded.
Identification	1	South Mountain formerly known as Top of the World. (Top of the World was also in MAS, but as of 14-JUL-10 was not in newMRDS). At some point the records were probably recognized as duplicates and consolidated.
Location	1	ALSO LOCATED IN SECTION 9,T23 N,R 116 W ALSO LOCATED IN SECTION 16,T23 N,R 116 W Main area is limited to S2 of SE4 Sec. 9. No evidence of any other workings, and no sign of prospects on the west side of the ridge. Sublet Provisional 1985 24k Topo map labels top of ridge as "Strip Mine". (Wilson, site visit 7-aug-2010)
Workings	1	"Phosphate Fertilizer, Inc., of Kemmerer operated an underground phosphate mine on Commissary Ridge during 1948-1949. The company installed a mill with a capacity of 200 tons of phosphate rock per day." (WGS Bull. 50, p. 147). Said mill, was probably in the flat spot just below the location of the now reclaimed adit on the 1985 provisional 24k Sublet topo.

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	Osterwald and others, 1966, WGS Bull. 50, p. 147.	p. 147.
Deposit	2	MINOBRAS, 1976, URANIUM GUIDEBOOK FOR WYOMING, APPENDIX A-15	A-15.

Groupings:

Rec	Grouping Name
1	WLCI

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New Mineral Resource Data System (NewMRDS)

Deposit ID: 10303516 **Printout Date:** 28-JAN-2013 02:43 pm
Site Name: Tunp Range Combined

Site Overview:

Record Type: Deposit **Deposit Type:**
Development Status: Prospect **Operation Type:** Surface-Underground
Old MRDS #: **Old MAS #:** 0560230034
Validated:

Country	State/Province	County
United States	Wyoming	Lincoln

Primary Commodity: Phosphorus-Phosphates - (P)

General Site Information:

Record Type: Deposit
Deposit Type:
Development Status: Prospect
Operation Type: Surface-Underground
Plant Type:
Plant Identifier:
Mining Method: Open Pit
Milling Method: Washing
Year of First Production:
Year of Last Production:
Years of Production:
Year of Discovery:
Discovery Method:
Discoverer:
Site Commodity Types: Non-metallic
Significant: N
Mineralized Area Name:
Location Problem:
Record added: 12-MAR-2002 00:00:00
Added By: MAS migration
Last Deposit Modification: 17-APR-2012 13:04:27
Last Table Modified: BIB_REFERENCES - Insert
Old MRDS #:
Old MAS #: 0560230034
Possible Dupes:

Name Information:

Name	Status
Tunp Range Combined	Current

Tunp	Previous
Tump Range	Previous
Tunp Range #1	Contains
Tunp Range #2	Contains
Tunp Range #3	Contains
Tunp Range #4	Contains

Commodities:

Commodity	Commodity Type	Importance	Estimated Resource Size	Estimated Production Size	Calculated Resource Size	Calculated Production Size
Phosphorus-Phosphates - (P)	Non-metallic	Primary				
Uranium - (U)	Energy	Tertiary				
Water, Free - (H2O)	Non-metallic	Tertiary				

Ownership Information:

Owner Name: U.S. Government
Ownership Type: Owner
Pct: 90
Year of Information: 1979
Beginning Year:
Ending Year:
Company ID:
Home Office Location: Dist Of Columbia

Owner Name: State Of Wyoming
Ownership Type: Owner
Pct: 10
Year of Information: 1979
Beginning Year:
Ending Year:
Company ID:
Home Office Location: Wyoming

Type of Mineral Holdings:

Line	Holding Type
1	Other

Location Information:

Country	State/Province	County	Quad 250
United States	Wyoming	Lincoln	Preston

Geo-Coordinate Information:

Datum of Entry: NAD27
Latitude: N-42-6-0 42.1
Longitude: W-110-49-0 -110.8167
WGS 84 Latitude: 42.1
WGS 84 Longitude: -110.8167
UTM Zone: 12N **Northing:** 4660681 **Easting:** 515159
Point of Reference: Ore Body
Location Accuracy: 10000
Relative Position:
Elevation: 2560m

PLSS Coordinate Information:

State: Wyoming **Meridian:** 6th Principal
Township: 024 N
Range: 118 W
Section: 04
Fractional Sections:

Mining Districts:

Line	District Name
1	Western Phosphate

Land Status Information:

Line	Land Status	Administrative Area
1	Mixed	

Physiographic Area Information:

Division	Province	Section	Additional Detail
Rocky Mountain System	Middle Rocky Mountains		

Maps (through USGS) this location plots on:

Agency	Map Name	Scale	State	Map Type
USGS	Preston	0250000	ID	250k Topo Map
USGS	4200n11030w Photogeologic Map	0096000	WY	Energy Resources
USGS	Fontenelle Reservoir	0100000	WY	100k Topo Map
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Management Status Map
USGS	Preston Quad Leasable Mineral And Waterpower Land Classification Map	0250000	ID	Mineral Resources
USGS	Geologic Map And Structure Sections Of The Cokeville 30 Minute Quadrangle	0062500	WY	Misc Geologic Investigation
USGS	Preston Quad Geologic Map	0250000	ID	Regional Geology
USGS	Wyoming Base 77	0048000	WY	48k Planimetric Map
USGS	Fontenelle Reservoir	0100000	WY	Blm Surface Minerals Management Status Map
USGS	Preston 1'X2' Quad Landslides And Windblown Sand Deposits Topographic Map	0250000	ID	Regional Geology
USGS	Preston Land Use/Land Cover Map	0250000	ID	250k Lulc - Composite (Graphic)
USGS	Sublette Canyon	0024000	WY	24k Graphic Oq
USGS	Cokeville	0125000	WY	125k - 30-Minute Map
USGS	Geologic Map Of The Preston Quadrangle	0250000	ID	Misc Geologic Investigation
USGS	Preston Quad Mines And Prospects Map	0250000	ID	Mineral Resources
USGS	Sublette Canyon	0024000	WY	24k Topo Map

Model Type:

USGS Number: 34c **BC Number:** F07 **MK3 Number:**

Model Name: Phosphate, upwelling type

Orebody Information:

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 50 M
Depth to Top: 50 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 1
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Secondary mode of Origin : RESIDUAL CONCENT
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 0
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 50 M
Depth to Top: 50 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 2
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Secondary mode of Origin : RESIDUAL CONCENT
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 0
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**

MAS Matrix:
MAS Matrix # : 3
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 600 M
Depth to Top: 300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**
MAS Matrix:
MAS Matrix # : 4
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 20
Avg. Thick. Unconsol. Mat. : 5
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 6000 M
Depth to Top: 1000 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**
MAS Matrix:
MAS Matrix # : 6
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 30
Avg. Thick. Unconsol. Mat. : 100
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: **Length:** 50000 M **Width:** 30000 M
Depth to Top: 2300 M **Depth to Bottom:** **Thickness:** 60 M
Strike: **Dip:** **Plunge:**
MAS Matrix:
MAS Matrix # : 7
Type of Orebody #1 : SEDIMENTARY
Shape of Orebody #1 : TABULAR
Primary mode of Origin : SEDIMENTATION
Primary Ore Control : LITHOLOGY
Degree of Wallrock Alter. : NONE
Minimum Depth to Top : 1524
Avg. Thick. Unconsol. Mat. : 300
Min. Thick. Unconsol. Mat. : 0
Date of Last Modification : 801103

Orebody Name:
Form:
Area: 2000 HA **Length:** **Width:**
Depth to Top: **Depth to Bottom:** **Thickness:**
Strike: **Dip:** **Plunge:**
MAS Matrix:
Total Surface Area (HA) : 2000
Date of Last Modification : 910418

Material/Minerals:

Ore/Gangue	Material
Unknown	Apatite
Unknown	Calcite
Unknown	Dolomite
Unknown	Feldspar
Unknown	Fluorite
Unknown	Gypsum
Unknown	Illite
Unknown	Kaolinite
Unknown	Limonite
Unknown	Montmorillonite
Unknown	Pyrite
Unknown	Quartz
Unknown	Sphene
Unknown	Tourmaline
Unknown	Zircon

Resource Information:

Year: 1967 **Line:** 1
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 10,900,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in	**Total Hist.

				Resources	Production
P	Phosphorus-Phosphates	18	wt-pct		
H2O	Water, Free	0	wt-pct		

Year: 1967 **Line:** 2
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 8,300,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	24	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 3
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 2,400,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

*Contained commodity number is for this year only:
**Total of all production records flagged as best:

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	31	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 4
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 32,800,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

*Contained commodity number is for this year only:
**Total of all production records flagged as best:

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	18	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 5
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 21,800,000
Total Endowment:

Units: mt ore

Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	24	wt-pct			
H2O	Water, Free	0	wt-pct			

Year: 1967 **Line:** 6
Resource Type: In-situ **Resource Name:**
Proved:
Probable:
Reserves:
Measured:
Indicated:
Demonstrated:
Inferred:
Total Resources: 9,300,000
Total Endowment:
Units: mt ore
Remarks:

Resource Details:

***Contained commodity number is for this year only:**
****Total of all production records flagged as best:**

Code	Commodity	Grade	Units	*Contained in Reserves	*Contained in Resources	**Total Hist. Production
P	Phosphorus-Phosphates	31	wt-pct			
H2O	Water, Free	0	wt-pct			

Workings Information:

Type of Workings: Surface **Name of Workings:**
Area: 300 HA

Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 93.7
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 10.68
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 2
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 94
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 11.42
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:

Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 1
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 93.7
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 15.09
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Surface **Name of Workings:**
Area: 300 HA
Length:
Width:
Height:
Overall Length:
Overall Width:
Depth:

Additional Information:
MAS Development Schedule #: 2
Mining Record # : 2
Status of Mining Method : PROPOSED
Mining Method : OPEN PIT
Swell Factor : .67
Percent Waste Rock : 94
Avg. Overburden Thickness : 5
Primary Material Cover : SAND, GRAVEL
Percentage : 100
Hardness of Ore : M-HARD ROCKS
Avg. Bench Height (meters): 10
Max. Pit Slope (degrees) : 45
Capacity : 4000
Capacity Units : MT ORE/DAY
Unit Production Cost : 15.72
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 3

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:

Height:
Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : SUPPORTING
Mine Support Chars. : POST, HEADBOARD, CAPS, ROOF BOLTS
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 25.94
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M

Additional Information:
MAS Development Schedule #: 1
Mining Record # : 4
Status of Mining Method : PROPOSED
Mining Method : ROOM AND PILLAR 10-34
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 75
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : SUPPORTING
Mine Support Chars. : POST, HEADBOARD, CAPS, ROOF BOLTS
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 13.79
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M
Additional Information:
MAS Development Schedule #: 2
Mining Record # : 3
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : UNSUPPORTING NO FLOW
Mine Support Chars. : TIMBER
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 27.53
Units of Production : $/MT ORE
Operating Days per Year : 250
Operating Shifts per Day : 2

Type of Workings: Underground **Name of Workings:**
Area:
Length: 7300 M
Width:
Height:
Overall Length:
Overall Width:
Depth: 100 M
Additional Information:
MAS Development Schedule #: 2
Mining Record # : 4
Status of Mining Method : PROPOSED
Mining Method : OVERHAND 10-38
Swell Factor : .67
Percent Waste Rock : 0
Percent Recovery : 90
Hardness of Rock : SOFT NONPLASTIC WITH LITTLE WATER
Rock Characteristics : ONE SYSTEM OF WEAKNESS PLANES
Rock Support Chars. : UNSUPPORTING NO FLOW
Mine Support Chars. : TIMBER
Number of Shafts : 1
Length of Inclines (m) : 0
Avg. Length of Adits (m) : 1000
Number of Adits : 1
Capacity : 1000
Capacity Units : MT ORE/DAY
Unit Production Cost : 30.47
Units of Production : $/MT ORE

Operating Days per Year : 250
Operating Shifts per Day : 2

Reporters:

Reporter	Report Date	Affiliation
B,D,D,S,Ww (R)	11-OCT-1996	U.S. Bureau of Mines
Drescher, Theodore A. (R) MAS records 0560230178-181.	24-APR-1995	U.S. Bureau of Mines
Wilson, Anna B. (E) combined and deleted 0560230178-181 (newMRDS 10303675, 10279071, 10279127, and 10206516).	08-FEB-2010	U.S. Geological Survey
Causey, J. Douglas (U) Added Model	15-DEC-2010	U.S. Geological Survey

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Other Databases:

Acronym	Database Name	Agency	Record ID	Note
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230034	
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230178	=newMRDS 10303675, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230179	=newMRDS 10279071, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230180	=newMRDS 10279127, merged and deleted.
MAS	Minerals Availability System	U.S. Bureau of Mines (no longer exists)	0560230181	=newMRDS 10206516, merged and deleted.

Comments:

Category	Line	Comment
Deposit	1	DOMAIN - THE OUTCROP AREAS ARE DISTRIBUTED FAIRLY EVENLY AMONG STATE LANDS, PUBLIC LANDS ADMINISTERED BY THE U.S. BUREAU OF LAND MANAGEMENT, AND NATIONAL FORESTS, WITH ABOUT 10 PERCENT OF THE OUTCROP AREA FALLING WITHIN TWO BLM ROADLESS AREAS. MINERAL HOLDINGS - MINERAL RIGHTS ON ABOUT 90 PERCENT OF THE OUTCROP AREA ARE HELD BY

		THE FEDERAL GOVERNMENT WITH THE REMAINDER HELD BY THE STATE OF WYOMING. ABBREVIATION FOR MINING DISTRICT: WEST. PHOSPHATE = WESTERN PHOSPHATE FIELD.
Deposit	2	THIS MINERALS AVAILABILITY SYSTEM EVALUATION WAS DONE AS PART OF A 1980 STUDY OF UTAH AND WYOMING PHOSPHATE DEPOSITS BY THE INTERMOUNTAIN FIELD OPERATIONS CENTER, DENVER, COLORADO.
Economic Factors	1	Mining and beneficiation costs for each proposed operation were obtained by applying one of 34 basic mine models and 5 basic mill models developed for evaluating Utah and Wyoming phosphate deposits. Site-specific cost adjustments were made for land acquisition, infrastructure, unusual haulage distance to mill, the presence of multiple beds requiring mining of waste, and mill feed grade and recovery. All costs are in January 1980 dollars. The schedule of costs is based on the assumption that each proposed operation will be independently developed as soon as technically possible after the official January 1979 base date for the current phosphate study. Thus, land acquisition, exploration, and infrastructure capital costs are assumed to begin in 1979. Mine and mill capital costs include a contingency allowance of 15 percent of all other capital costs except working capital. Mine and mill working capital is estimated at 60 days of operating cost. A Bureau costing manual (bibliography data set ref. I030) was used to estimate surface and underground mine exploration, development, reclamation, plant, and equipment capital costs; underground mine operating costs; capital and operating costs for the calcining-hydration mill (if used) and for the flotation sections of other mills; costs of transporting products from proposed mills to existing final processing plants; and access road construction cost. Surface mine operating costs are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), and others (U.S. office of audit and investigation) for Idaho phosphate mines in 1976 and 1977. Infrastructure capital costs assigned to each proposed mine consist of only those railroad, transmission line, and access road costs which are needed for development of each mine. Railroad cost is estimated by the Richardson rapid construction cost estimating system (bibliography data set ref. I020). Transmission line cost is estimated from typical industry costs (A.W. Watts, 1980, Water and Power Resources Services, personal communication). Access road costs are estimated by using the capital and operating cost estimating handbook (bibliography data set ref. I030). Land acquisition costs are based on typical competitive bids for leases in southeastern Idaho, adjusted for specific deposit grade and thickness. Lease rentals and royalties are based on current rates for federal leases in the western phosphate field. Capital and operating costs for all mills, excepting the calcination-hydration mill (if used) and flotation sections of other mills, are size-scaled, using scaling factors from Bennett (bibliography data set ref. I001), from costs given for a sizing and calcining mill described by de Voto, et al. (bibliography data set ref. R030), vol. 2, appendix d. Site-specific cost adjustments for mill feed grade and recovery are made, using relative cost factors calculated from average cost and recovery curves for altered and unaltered ores (bibliography data set ref. I010).
Geology	1	THE PHOSPHORIA FORMATION IS SUBDIVIDED INTO FIVE MEMBERS BY MCKELVEY (BIBLIOGRAPHY REF. L010), TWO OF WHICH (THE MEADE PEAK AND RETORT MEMBERS) CONTAIN SIGNIFICANT PHOSPHATE DEPOSITS. IN UTAH AND SOUTHWESTERN WYOMING, THE MEADE PEAK MEMBER, AND IN CENTRAL AND NORTHWESTERN WYOMING, THE RETORT MEMBER CONTAIN THE DEPOSITS OF POTENTIAL INTEREST. THE PARK CITY FORMATION OF UTAH AND CENTRAL WYOMING AND THE SHEDHORN SANDSTONE OF NORTHWESTERN WYOMING ARE STRATIGRAPHIC EQUIVALENTS OF AND INTERTONGUE WITH THE PHOSPHORIA FORMATION. THE PHOSPHORIA FORMATION AND EQUIVALENT FORMATIONS ARE UNDERLAIN BY EITHER THE TENSLEEP SANDSTONE, WEBER QUARTZITE, WELLS

		FORMATION, OR DIAMOND CREEK SANDSTONE AND ARE OVERLAIN BY EITHER THE WOODSIDE OR DINWOODY FORMATIONS.
Ownership	1	PHOSPHATE LANDS MAY BE LEASED FROM THE STATE OF WYOMING OR FROM THE U.S. GOVERNMENT, EXCEPT POSSIBLY FOR THE LAND IN THE TWO BLM ROADLESS AREAS.
Production	1	PRODUCTS A,B,C,D, AND E, WHERE PROPOSED IN THIS EVALUATION, ARE ACID GRADE PRODUCTS, AND PRODUCTS F,G,H,I, AND J, ARE FURNACE GRADE PRODUCTS. NOT ALL OF THESE PRODUCTS ARE USED IN THIS EVALUATION.
Production	2	RECOVERIES IN THE YIELD DATA SET FOR TWO-PRODUCT MILLS ARE CALCULATED FROM THE TOTAL FEED TO THE MILL AND ARE NOT ACTUAL RECOVERIES WITHIN EACH ORE STREAM. WITHIN-ORE-STREAM RECOVERIES FOR TWO-PRODUCT MILLS PROPOSED IN THIS EVALUATION ARE 90.0 PERCENT FOR MILL K1, D1 & D2 & 92.0 PERCENT FOR K2, D1&D2. EXACT RECOVERIES USED IN CALCULATING PRODUCT OUTPUT TONNAGES FOR TWO PRODUCT MILLS PROPOSED IN THIS EVALUATION ARE 39.4440 PERCENT FOR PRODUCT A, DEV SCH 1&2; 50.5560 % FOR PRODUCT F,DEV SCH 1&2;40.9479 PERCENT FOR PRODUCT B DEV SCH 1&2; 51.0521 PERCENT FOR PRODUCT G, DEV SCH1&2;
Production	3	THE EXACT DATE OF DISCOVERY IS NOT KNOWN, BUT WAS AROUND THE TURN OF THE CENTURY. EXPLORATION HAS OCCURRED SPORADICALLY, BUT THE EXACT DATES ARE UNKNOWN.
Reserve-Resource	1	RESERVE RECORDS 1, 2, AND 3 CONSIST OF ABOVE ENTRY LEVEL RESOURCES IN THE BASIN CREEK AREA. RESERVE RECORDS 4, 5, AND 6 CONSIST OF ABOVE ENTRY LEVEL RESOURCES IN THE PINE CREEK AND SUBLETTE CREEK DRAINAGES.
Reserve-Resource	2	PROPERTY HAS BEEN SPLIT INTO 4 SEPARATE DEPOSITS FOR SUPPLY ANALYSIS WITH SEQUENCE NOS. 0560230178, 0560230179, 0560230180, AND 0560230181 RESPECTIVELY NAMED TUNP RANGE NO 1, TUNP RANGE NO 2, TUNP RANGE NO 3, AND TUNP RANGE NO 4. REFER TO THESE SPECIFIC DEPOSITS FOR THEIR INDENTIFIED RESERVES AND OPERATING DATA. [A.B. Wilson, 8-feb-2010 deleted these 4 duplicate records from the database. There was no information specific to these deposits in those 4 records].

Bibliographic References:

Category	Line	Reference	Pages
Deposit	1	CLABAUGH, P. S., 1946, PERMIAN PHOSPHATE DEPOSITS OF MONTANA, IDAHO, WYOMING, AND UTAH: U.S. GEOLOGICAL SURVEY STRATEGIC MINER. INV. PRELIM. MAP 3-198, 1 SHEET.	
Deposit	2	GARRAND CORPORATION, 1975 (?), PHOSPHATE RESERVES OF SOUTHEASTERN IDAHO: U.S. DEPT. OF AGR. CONTRACT NO. 50-820, 1102 P.	
Deposit	3	HALE, L. A., ED., 1967, ANATOMY OF THE WESTERN PHOSPHATE FIELD: INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., 287 P., 3 PLATES.	
Deposit	4	Spangenberg, D.R., Carey, E.F., and Takosky, P.M., 1983, Minerals availability commodity directory on phosphate: U.S. Bureau of Mines Information Circular IC-8926, 678 p.	p. 388-391.
Geology	4	MCKELVEY, V. E., 1946, PRELIMINARY REPORT ON STRATIGRAPHY OF THE PHOSPHATIC SHALE MEMBER OF THE PHOSPHORIA FORMATION IN WESTERN WYOMING, SOUTHEASTERN IDAHO, AND NORTHERN UTAH: U.S. GEOLOGICAL SURVEY UNPUB. REPT., 162 P. OBTAINED FROM U.S. GEOLOGICAL SURVEY DEPT. OF CONSERV. OFFICE IN ROCK SPRINGS, WYO.	
Geology	5	MCKELVEY, V. E., SMITH, L. E., HOPPIN, R. A., AND ARMSTRONG, F. C., 1953, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING: U.S. GEOLOGICAL SURVEY CIRC. 210, 35 P.	

Geology	6	RUBEY, W. R., ORIEL, S. S., AND TRACEY, J. I., JR., 1975, GEOLOGY OF THE SAGE AND KEMMERER 15-MINUTE QUADRANGLES, LINCOLN COUNTY, WYOMING: U.S. GEOLOGICAL SURVEY PROF. PAPER 855, 18 P., 2 PLATES.
Geology	7	RUBEY, W. W., ORIEL, S. S., AND TRACEY, J. I., JR., 1976, GEOLOGIC MAP OF THE COKEVILLE 30-MINUTE QUADRANGLE, LINCOLN AND SUBLETTE COUNTIES, WYOMING: U.S. GEOL. SURVEY OPEN FILE REPT. 76-597, 1 PLATE.
Geology	8	SHELDON, R. P., CRESSMAN, E. R., CARSWELL, L. D., SMART, R. A., 1954, STRATIGRAPHIC SECTIONS OF THE PHOSPHORIA FORMATION IN WYOMING, 1952: U.S. GEOLOGICAL SURVEY CIRC. 325, 24 P.
Geology	9	U.S. GEOLOGICAL SURVEY, 1955, PRESTON, IDAHO; WYOMING, 1-DEGREE BY 2-DEGREE TOPOGRAPHIC MAP: U.S. GEOL. SURVEY, 1:250,000-SCALE MAP, 1 SHEET.
Geology	11	MCKELVEY, V. E., 1959, THE PHOSPHORIA, PARK CITY, AND SHEDHORN FORMATIONS IN THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY PROF. PAPER 313-A, P. 1-47, 3 PLATES.
Geology	13	GULBRANDSEN, R. A., 1967, SOME COMPOSITIONAL FEATURES OF PHOSPHORITES OF THE PHOSPHORIA FORMATION, IN INTERMOUNTAIN ASSOC. OF GEOL. 15TH ANN. FIELD CONF., P. 99-102.
Ownership	1	U.S. BUREAU OF LAND MANAGEMENT, 1978, STATE OF WYOMING LAND STATUS: U.S. BUR. OF LAND MANAGEMENT MAP, 1:500,000-SCALE, 1 SHEET.
Production	1	DUNCAN, W. E., AND FISK, H. G., 1957, CENTRAL WYOMING PHOSPHATE ROCK - CHARACTER, PROCESSING, AND ECONOMICS: UNIV. OF WYO. NAT. RES. RESEARCH INST. BULL. 6, 60 P.
Production	2	EBERL, E., 1970, BENEFICIATION OF CALCIUM PHOSPHATE BY CALCINATION, THE MATERIAL BALANCE: RUDARSKO - METALURSKI ZBORNIK, NO. 2-3, 1970, P. 275-283.
Production	3	GOKHALE, K. V. G. K., RAO, T. C., AND BISWAS, A. K., 1975, BENEFICIATION STUDIES ON A HIMALAYAN LEAN PHOSPHATE DEPOSIT WITH CALCAREOUS GANGUE, IN SEMINAR ON BENEFICIATION OF LEAN PHOSPHATE WITH CARBONATE GANGUE, 11TH INTERNAT. MINERALS PROCESSING CONGRESS, KAGLIARI, ITALY, APRIL 23-24, 1975, P. 53-54.
Production	4	GOOD, P. C., 1976, BENEFICIATION OF UNWEATHERED INDIAN CALCAREOUS PHOSPHATE ROCK BY CALCINATION AND HYDRATION: U.S. BUREAU OF MINES REPT. INV. 8154, 17 P.
Production	5	NEUBERGER, R., 1968, PHOSPHATE ROCK CALCINATION IN ISRAEL: PHOSPHORUS AND POTASSIUM, NO. 35, MAY/JUNE 1968, P. 11-21.
Production	6	RULE, A. R., DAHLIN, D. C., AND FERGUS, A. J., 1978, FLOTATION OF CARBONATE AND SILICATE MINERALS FROM PARTIALLY ALTERED PHOSPHATE ROCK OF THE PHOSPHORIA FORMATION, PAPER PRESENTED AT ISMA TECHNICAL/ECON. CONF.; ORLANDO, FLA., OCT. 23-27, 1979, 11 P.
Production	7	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1977, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES, PAPER PRESENTED AT S.M.E. FALL MEETING AND EXHIBIT, ST. LOUIS MO., OCT. 19-21, 1977, 17 P.
Production	8	RULE, A. R., KIRBY, D. E., AND DAHLIN, D. C., 1978, RECENT ADVANCES IN BENEFICIATION OF WESTERN PHOSPHATES: MIN. ENG., JAN. 1978, P. 37-40.
Reference	1	HARRIS, R. A., DAVIDSON, D. F., AND ARNOLD, B. P., 1954, BIBLIOGRAPHY OF THE GEOLOGY OF THE WESTERN PHOSPHATE FIELD: U.S. GEOLOGICAL SURVEY BULL. 1018, 89 P.
Reserve-Resource	1	COFFMAN, J. S., AND SERVICE, A. L., 1967, AN EVALUATION OF THE WESTERN PHOSPHATE INDUSTRY AND ITS RESOURCES - PART 4,

		WYOMING AND UTAH: U.S. BUREAU OF MINES REPT. INV. 6934, 158 P.
Reserve-Resource	2	DE VOTO, R. H., AND STEVENS, D. N., ED., 1979, URANIFEROUS PHOSPHATE RESOURCES AND TECHNOLOGY AND ECONOMICS OF URANIUM RECOVERY FROM PHOSPHATE RESOURCES, UNITED STATES AND FREE WORLD: SUBCONTRACT 78-177-S TO DEPT. OF ENERGY CONTRACT 50-54-5903 (BENDIX FIELD ENG. CORP.) BY EARTH SCIENCES INC., 1396 P. PLUS PLATES.

Groupings:

Rec	Grouping Name
1	WLCI

File Room:

SAM run*	BOM PEFR*	Consultant report	Maps/Sketches	Other images	Articles	Prod. Records	Misc. Data
Y			Y		Y		Y

Misc. Data Comment:

* Items in these columns are proprietary/confidential (for internal USGS only). Items in other columns may be, but need to be looked at on a record by record basis.

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