

US Magnesium NPL Site



Site photographs....



Great Salt Lake Shoreline



"Old" NE-Lakebed Waste Lagoon

Historic GSL Shoreline

Active-Lagoon Dike & Road

NW-Waste Lagoon

SE-Waste Lagoon

Gypsum Slurry

Landfill

Barium Sulfate

Smut

Waste-pitches

US Mag Plant

Hill Bros. Chemicals

...Airshed...

ATI Titanium Plant

US Magnesium NPL Site

Ditches

Site photographs....

The Chlorine, Central, and Western ditches flow northward from the plant, connecting with the Main Ditch (center foreground) leading to the waste-lagoons.





Starting point of the Chlorine Ditch showing various plant discharges. The former Boron Ditch (now buried) is a short distance east (towards background) of this ditch.



View towards plant downstream in Chlorine Ditch, with more discharges joining stream.



View from head of Central Ditch plant discharge looking north towards Main Ditch.



Confluence of Chlorine and Main ditches showing suspected chlorine gas venting from end of submerged pipe.



Close-up of chlorine gas discharge at confluence of Main and Chlorine ditches.



Main Ditch (Red River) looking east from confluence with Chlorine Ditch.



Oily waste-seep discharging into Main Ditch.



Oil sheen in Main Ditch (lower-right) from Western/Central Ditches at confluence with Chlorine Ditch (upper-right).



**Sediment sampling in the
Main "Red River" Ditch**

Photograph: 2 *VOC sediment sample collection using EnCore: PRI01-1.*

<i>Location: DMA-Sed-PRI01-1</i>	ERM
<i>Date: 10/9/12</i>	



Photograph: 8 *Filling sample bottles during wastewater sampling at location DMA-Sed/WW-PRI01-2.*

<i>Location: DMA-Sed/WW-PRI01-2</i>	ERM	<i>UIS Magnesium Rowley, Utah</i>
<i>Date: 10/8/12</i>		

Field-processing sediment samples from the Main "Red River" Ditch



Photograph: 10 Sediment sample processing at location DMA-Sed/WW-PR
 Location: DMA-Sed/WW-PR101-2
 Date: 10/8/12

ERM



Photograph: 17 Filling sample bottles with homogenized solid waste (gypsum) sample collected at
 DMA-Gyp-PR104-2.

Location: DMA-Gyp-PR104-2
 Date: 10/5/12

ERM

US Magnesium
 Rowley, Utah

US Magnesium NPL Site

Northeast Ponded Waste Lagoon (within GSL lake-bed)

Site photographs....



Northeast Ponded Waste Lagoon from western edge of former waste pond (May 2010).



View of NE Poned Waste Lagoon looking to south pond wastes and standing water to left (May 2010).



View looking south at northeast corner of NE Poned Waste Lagoon. “High-waters” of NE-Lagoon to right of “dike/road”; fresh waters of Skull-Valley Diversion Canal flowing into GSL to left (east) of road (May 2010).



Dry and encrusted bed of NE-Ponded Waste Lagoon (September 2011).



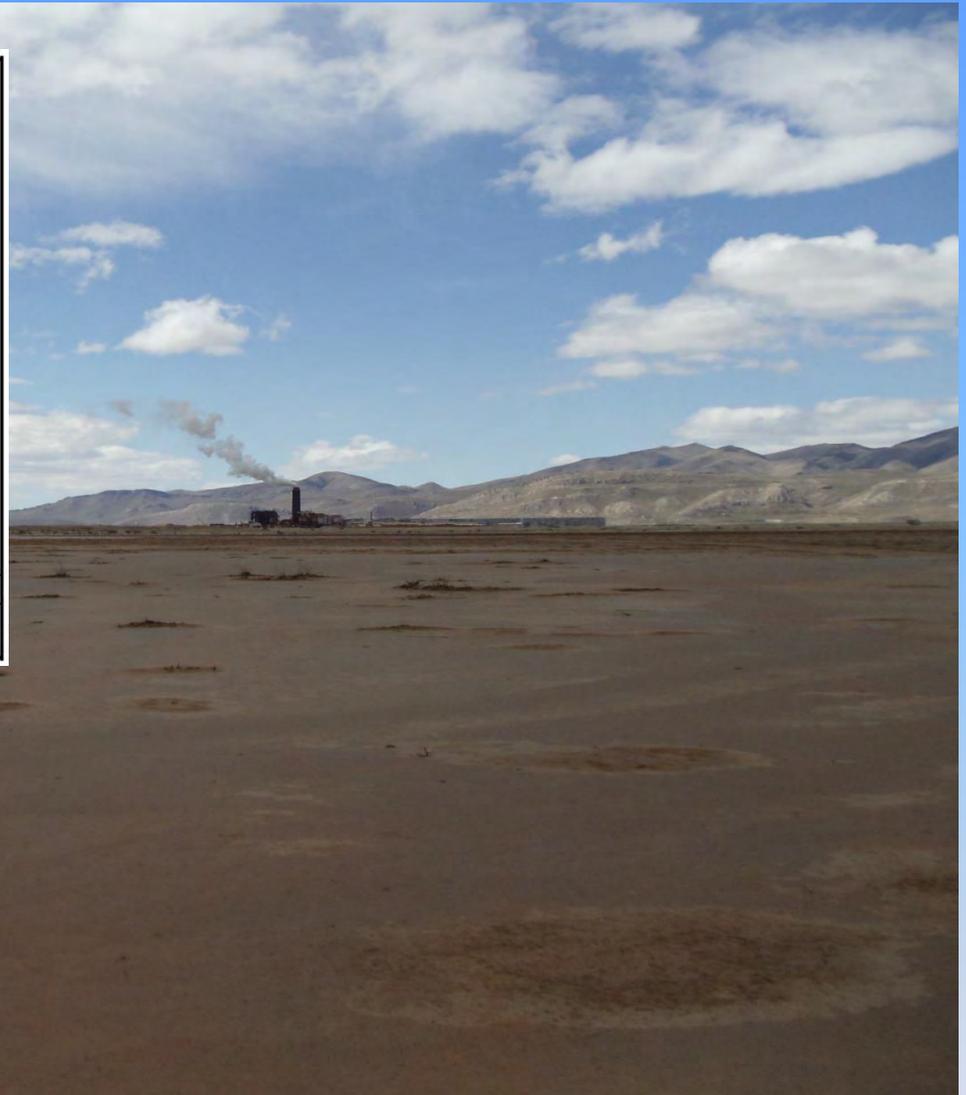
Photograph: 38 Water sampling at DMA-Scd/W-PR107-1

Location: DMA-Scd/W-PR107-1

Date: 10/9/12

ERM

US Magnesium
Rowley, Utah



View to SW across waste-sediments of historic NE-Ponded Waste Lagoon (May 2010).



Evidence of livestock grazing along shoreline of NE Poned Waste Lagoon (May 2010).



Small animal burrows along historic GSL shoreline adjacent to NE Poned Waste Lagoon (May 2010).



Large-bird tracks in dried mud on roadway between NE Poned and SE Poned Waste Lagoon.



Dry encrusted waste/sediments in NE Poned Waste Lagoon with dead insect (September 2011).



Shoreline of SE Poned Waste Lagoon; Magnesium plant in distance with landfill escarpment (upper left) between plant and lagoon; main ditch carrying wastes from plant visible in distance between landfill and whitish earthen dikes on right (September 2011).



View south overlooking eastern “shoreline” of SE Poned Waste Lagoon (May 2010).



<i>Photograph: 22</i>	<i>Sediment sample collection at DMA-Sed/WW-PRI05-1 using an AMS sediment sampler.</i>
<i>Location: DMA-Sed/WW-PRI05-1</i>	<i>ERM</i>
<i>Date: 10/3/12</i>	<i>US Magnesium Rowley, Utah</i>

Photograph: 19

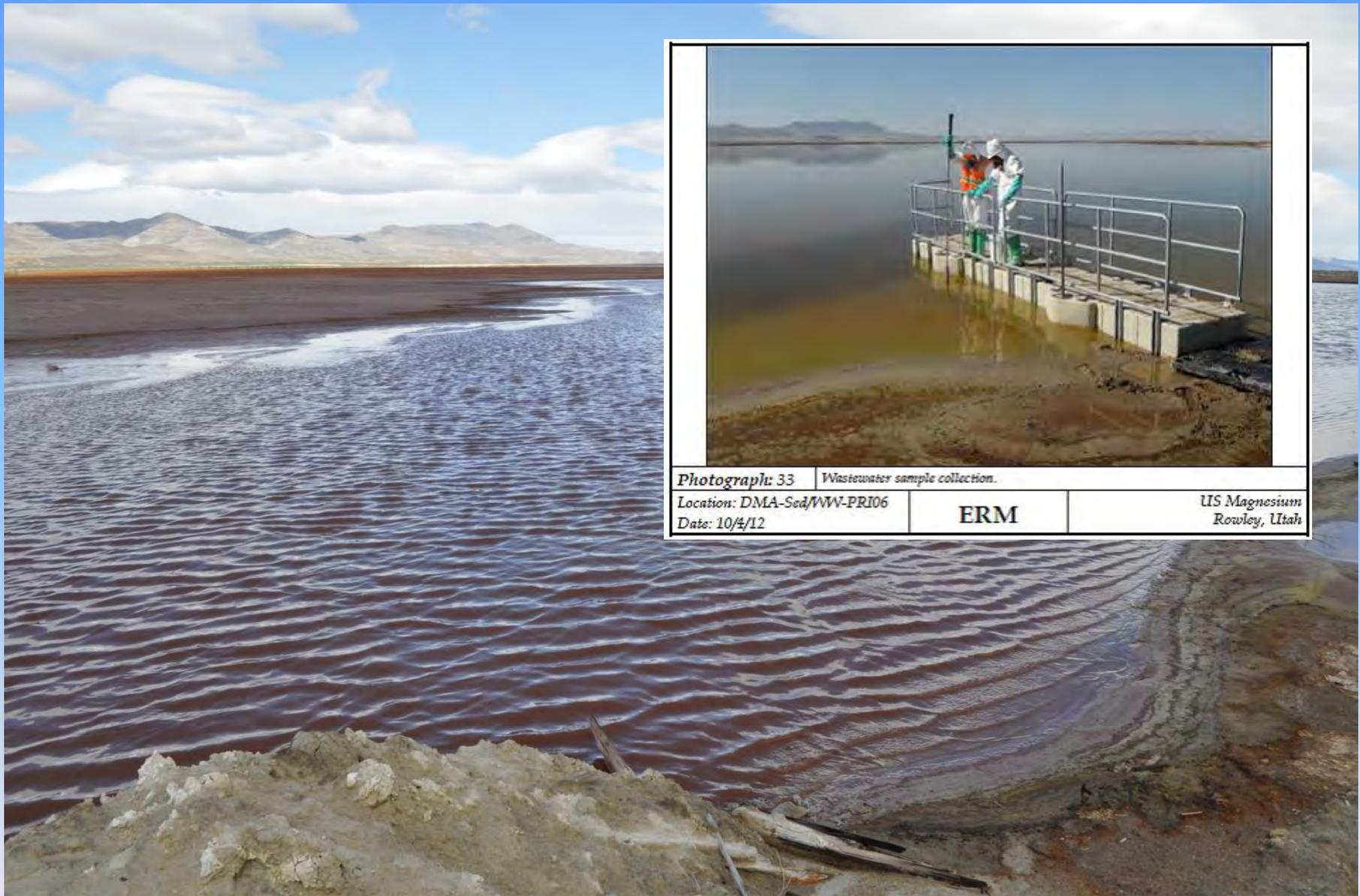
Dock placement at DMA-Sed/WW-PRI05-1.

Location: DMA-Sed/WW-PRI05-1

Date: 10/3/12

ERM

*US Magnesium
Rowley, Utah*



View south over waters and waste sediments in SE Poned Waste Lagoon (May 2010).



<i>View of sample area after soil sample collection at DMA-Soil-PRI05.</i>		
<i>Photograph: 29</i>	ERM	<i>US Magnesium</i>
<i>Location: DMA-Soil-PRI05</i>		<i>Rowley, Utah</i>
<i>Date: 10/5/12</i>		

Eastern shoreline of SE Pondered Waste Lagoon; historic GSL shoreline “beach” area to left. (May 2010)



Native groundcover and diggings of oolitic sand along northern shoreline of NW Poned Waste Lagoon; ATI concrete building and “smut” residues visible in distance. (May 2010)



**Flooded native ground (dead shrub wood-stalks) of NW Poned Waste Lagoon;
Magnesium Plant and ATI plant (concrete building) in distance. (May 2010)**



View of native groundcover along northern shoreline of NW Poned Waste Lagoon (gypsum pile and landfill in distance across lagoon); numerous gulls in flight. (May 2010)



Southern area of NW Poned Waste Lagoon; gypsum-pile waste sediment and waste streams extending into the lagoon waters. (May 2010)



Southeastern shoreline of the NW Poned Waste Lagoon. (May 2010)

US Magnesium NPL Site

Gypsum Pile

Site photographs....



Areal extent of gypsum waste pile.



Slurry pipe discharging wastes stream atop gypsum pile.



Slurry discharge channel (excavated and moved periodically to redirect flow) across top of Gypsum Pile.



Gypsum Pile slurry dispersing onto pile area; waters of NW-lagoon visible in distance.



Animal tracks on Gypsum Pile waste.

US Magnesium NPL Site

Smut Piles

- Site-tour photographs....



Weathered (old) portion of the Smut Piles.



Less-weathered portions of the Smut Piles.



Dark-colored un-weathered smut.



Light- and dark-colored un-weathered smut.

US Magnesium NPL Site

Barium Sulfate area

Site photographs...



Light-colored flat area (to right at end of road in distance) is the Barium Sulfate Area landfill.

US Magnesium NPL Site

Landfill

- Site-tour photographs....



Dashed box shows general extent of landfill; newest fill-zones in foreground (east).



Refuse disposal into permitted landfill; up-gradient of SE-active lagoon waters visible in background (September 2011).



Disposed tank in landfill partially submerged in shallow water table (September 2011).

View west over “early-decades portion: of landfill, showing relative thickness above original ground surface (to left-center).



US Magnesium NPL Site

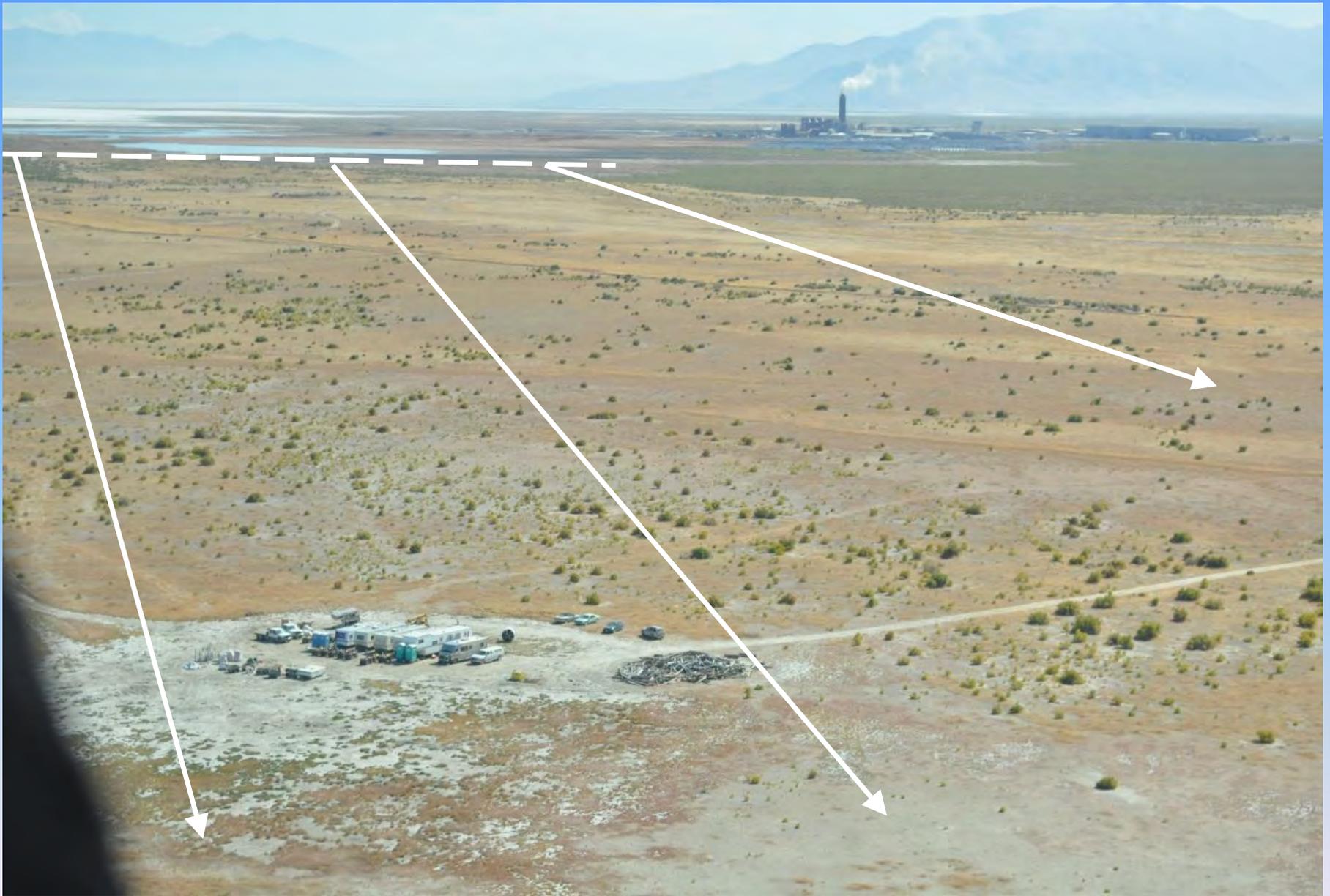
Surrounding Buffer Areas:

North-east-south GSL shorelines

Western shrub uplands

Lakeside Mountains

- Site photographs....



Buffer Area North showing shrimp harvester's seasonal camp and active ponded waste lagoons in background.



Buffer Areas North, East and South, the Skull Creek Diversion, and solar evaporation pond in distant background.



Buffer Area North and East overlooking the GSL inlet canal to the solar-evaporation cells.



Aerial view to north over Buffer Area North and East showing Great Salt Lake and inlet of canal to solar-evaporation ponds.



View west over plant-site. The medium-green area (arrows) is the upland shrub-zone of PRI -15 Buffer Area West lying between the GSL/Plant-Site and the PRI-16 Lakeside Mountains (visible in the distance). Due to potential impact by airborne contaminants, the General Investigation Study Area extends beyond the plant and waste areas to a distance of 5 miles. Much of the Buffer Area West and Lakeside Mountains study area is federal lands (under BLM management) and also private and state lands.



View east from base of Lakeside Mountains towards plant site. The area shown by arrows is the shrub-zone of the upland Buffer Area West lying between the Lakeside Mountain foothills and the US Magnesium Plant. The 5-mile General Study Area includes this area. Note the airborne fugitive dusts blowing off the Gypsum Pile.



Cattle grazing in upland grass and shrub areas of Buffer Area West. (April 2011)



Pronghorn antelope moving from lowlands to Lakeside Mountain Buffer Area. (April 2011)



Upland grass and shrub vegetation of Buffer Area West with US Magnesium plant in background.



**Manmade “pipeline”
spring in upland grass- and
shrub-land of Buffer Area
West; lower photo shows
“tadpole” amphibians
present in the overland
spring waters.**



US Magnesium NPL Site

Sanitary Lagoon

Site photographs....

**View north over the
Sanitary Lagoon.**



**Liquid-discharge inlet
area of the Sanitary
Lagoon PRI 3.**



US Magnesium NPL Site

Site-wide Airshed

- Photographs....



US Magnesium NPL Site



2.2 miles

2123 ft

© 2014 Google

Google earth



Imagery Date: 6/1/2013 40°55'13.34" N 112°43'04.50" W elev 4219 ft eye alt 12127 ft

SALT LAKE CITY



2.2 miles



4th W
W 1st Ave
S 300 S

W 4th W
W 3rd W
W 2nd W

W 2nd S

W 1st S

W Temple

S Main St

270

89

186

E Broadway

E 100 S

E 200 S

E 300 S

S State St
Edison St S
S 200 E

E 800 S
E 700 S

S 300 E
S 4th E

S 3rd E
E 500 S
E 400 S

Denver St

S 5th E



1994

© 2014 Google

Google earth

Imagery Date: 6/4/2013 40°45'36.36" N 111°54'00.99" W elev 4246 ft eye alt 11365 ft