

CLOSE OUT PLAN

On behalf of: Southwest Resources, Inc.  
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Submitted to: Director,  
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## 1.0 INTRODUCTION

The Closeout Plan (Plan) for Southwest Resources, Inc.'s (Southwest) Section 11 and 12 existing mine known as the Ambrosia Lake Mine has been prepared in compliance with the requirements of NMAC 19.10.5.506. The Plan is based on available data. The Plan was prepared using the NM EMNRD (MARF) document entitled *Closeout Plan Guidelines*.

Section 1 of the Plan discusses the project site including soils, geology, surface and groundwater and post-mining land use. Section 2 describes the components of the Closeout plan. Section 3 provides a description of gamma radiation level surveys. Section 4 provides a Financial Assurance Cost estimate and detailed reclamation sequence and plan. Section 5 details the Closeout Plan schedule.

### 1.1 PROJECT DESCRIPTION AND BACKGROUND

The uranium mine is located in the Southwest quarter, Section 12, 14 N, R 10 W and Section 11, south half, NE quarter quarter, Township 14 N R 10 W, McKinley County. It is commonly known as the Ambrosia Lake Mine, which is an existing mine. This mine is an underground uranium mine that operated in 1959 and 1962 and from 1974-1982. Mining operations are currently inactive. The total operating area is 15 acres more or less. See Fig. 1—Sec. 7.0.

The mine is located in the San Juan basin in the Ambrosia Lake district. The main shaft, storage area, staging area and main surface activities of the mine occur in a compact area of about 12 acres to the east of Ambrosia Lake.

Southwest is the surface and mineral estate owner of the mining operations area.

Features of the mining operation include two vent shafts, one escape shaft, one main shaft, one small stock pile area, one small staging area, staging area, and one small non-economic waste area consisting of coarse to fine grained sand and gravel-sized sandstone and bentonitic shale fragments. See Fig. A.2—Sec. 7.0.

### 1.2 SITE SOILS AND GEOLOGY

#### Soils

Native soils on site consist of silt, slightly clayey sands. Soils in the non-economic storage area will consist of coarse to fine grained sand and gravel-sized sandstone and bentonitic shale fragments. The ore stockpile will consist of gray-colored medium to coarse-grained sands with cobbles and gravels.

#### Geology

The geologic regime at the site includes the following strata in descending sequence: alluvium/weathered Mancos shale; the Tres Hermanos-C, -B, and -A sandstones; the Dakota

formation; the Westwater Canyon Member of the Morrison formation; the Bluff Sandstone formation; and the Todilto Limestone formation.

### 1.3 SURFACE WATER AND GROUNDWATER

#### Surface water

Surface water at the site is characterized as intermittent, with flows generally occurring only after heavier precipitation events. Surface water drains from unnamed arroyos into Ambrosia Lake. The water is not used as a potable drinking source. Additional ponds within the vicinity of the proposed permitted area, all of which are usually dry, include mine ponds not currently in operation.

#### Groundwater

Groundwater is reportedly encountered at a depth of 550 feet according to NMED records pertaining to a previous Section 3 Minimal Impact Exploration Permit Application submitted last decade. However, approximately 630 ft. depth to groundwater was measured during Sec 12 (SW ¼) shaft installation in mid-late 1970's and other Office of the State Engineer records show that depth to ground water with respect to historic mining operations closest to the proposed permitted area exceed 700 ft. *See Table 2—Sec. 7.0.* The closest data point for ground water quality is in Section 17, approximately 2 miles from the Section 12 head frame and main shaft. **Figure 1—Sec. 7.0** (displays average regional TDS levels for Sections 17, 19, 24, 23, and 22).

### 1.4 POST-MINING LAND USE

Reclamation is designed to accommodate grazing for livestock and native wildlife.

### 1.5 VEGETATION AND WILDLIFE

#### Vegetation

The vegetation in the area of the site is typical of the arid desert environment. Plant species present in the area were determined during the making of *Ambrosia Lake Environmental Assessment Report* (DOE, 1987). According to the study, none of the taxa constitutes protected species, species of concern, or noxious weeds by statute or regulation.

Species encountered in the Ambrosia Lake Area as listed in Tables 2.3 and C.1.1.1 of the 1987 DOE Report:

| <i>(Scientific Name) (Common Name)</i> | <i>(Scientific Name)(Common Name)</i>    |
|--|--|
| Abronia sp./ Sandverbena               | Muhlenbergia torreyi / Ring muhly        |
| Agropyron smithii / Western Wheatgrass | Oenothera albicaulis / evening primrose  |
| Aristida longiseta/ Red Threeawn       | Oenothera pallida Pale/ evening primrose |
| Aristida purpurea/ Purple Threeawn     | Oryzopsis hymenoides/ Indian Ricegrass   |
| Artemisia nova/ Black Sagebrush        | Penstemon sp./ Penstemon                 |
| Astragalus sp./ Milkvetch              | Phacelia corrugata /Scorpion weed        |

|  |  |
|--|--|
| Aster sp./ Aster                               | Phlox sp./ Phlox                           |
| Atriplex canescens/ Fourwing saltbrush         | Plantago purshii/ Plantain                 |
| Atriplex confertifolia/ Shadscale              | Psoralea lanceolata/ Scurfpea              |
| Atriplex obovata/ Saltbush                     | Purshia tridentate/ Antelope bitterbrush   |
| Bromus tectorum/ Cheatgrass                    | Rhus trilobata/ Skunkbrush sumac           |
| Chrysothamnus nauseosus/ Rubber rabbitbrush    | Rumex crispus/ Curly dock                  |
| Chrysothamnus viscidiflorus/ Green rabbitbrush | Sarcobatus vermiculatus/ Greasewood        |
| Cowania Mexicana/ Cliff rose                   | Sisymbrium altissimum/ Tumble mustard      |
| Cryptantha crassisejala/ Cat's eye             | Sitanion hystrix/ Bottlebrush squirreltail |
| Dithyrea wislizenii/ Spectaclepod              | Sphaeralcea parvifolia/ Globemallow        |
| Ephedra torreyana Ephedra                      | Sporobolus airoides Alkali sacaton         |
| Eriogonum sp./ Buckwheat                       | Sporobolus contractus/ Spike dropseed      |
| Euphorbia fendleri Spurge                      | Sporobolus cryptandrus/ Sand dropseed      |
| Eurotia lanata/ Winterfat                      | Sporobolus giganteus /Giant dropseed       |
| Festuca octoflora/ Sixweek fescue              | Stipa comate/ Needle and thread            |
| Gutierrezia sarothrae/ Snakeweed               | Stipa neo Mexicana/ Feathergrass           |
| Hordeum pusillum/ Little barley                | Suaeda torreyana/ Seepweed                 |
| Juniperus sp./ Juniper                         | Tridens pulchellus/ Fluffgrass             |
| Lactuca sp./ Wild lettuce                      | Verbesina encelioides/ Golden Crownsbeard  |
| Lappula Sp./ Stickseed                         | Yucca sp./ Yucca                           |
| Lycium pallidum Pale/ wolfberry                |  |

### Wildlife

A wildlife survey for the region surrounding the Ambrosia Lake area was included in the DOE report. According to the wildlife survey presented in Appendix C of the DOE report, grassland and slope-cliff habitats are the principle habitats in the area. There are no threatened and endangered species in the vicinity of the site. However, several species may occasionally migrate through the site, including the peregrine falcon and the bald eagle.

### Fauna and Signs of Fauna Observed in the Ambrosia Lake Area as listed in Tables 2.2 and C.1.2 of the 1987 DOE Report:

#### ***Mammals (Common) (Scientific Name)***

Black-tailed jackrabbit/ *Lepus californicus*  
 Desert cottontail/ *Sylvilagus auduboni*  
 Coyote/ *Canis latrans*

#### ***Birds (Common) (Scientific Name)***

Sharp-shinned hawk/ *Accipiter striatus*  
 Red tailed hawk/ *Buteo jamaicensis*  
 American kestrel/ *Falco sparverius*  
 Mourning dove/ *Zenaida macroura*  
 Northern flicker/ *Colaptes auratus*  
 Western kingbird/ *Tyrannus verticulis*  
 Say's phoebe/ *Sayornis saya*

Horned lark/ *Eremophila alpestris*  
Cliff swallow/ *Petrochelidon pyrrhonota*  
Scrub Jay/ *Aphelocoma coerulescens*  
Pinyon jay/ *Gymnorhinus cyanocephalus*  
Common raven/ *Corvus corax*  
Bewick's wren/ *Thryomanes bewickii*  
Rock Wren/ *Salpinctes obsoletus*  
Mockingbird *Mimus polyglottos*  
Loggerhead shrike/ *Lanius ludovicianus*  
Western Meadowlark/ *Sturnella neglecta*  
Brewer's blackbird/ *Euphagus cyanocephalus*  
Lark sparrow/ *Chondestes grammacus*  
Black-throated sparrow/ *Amphispiza bilineata*

***Reptiles (Common) (Scientific Name)***

Red-spotted toad/ *Bufo punctatus*  
Side-blotched lizard/ *Uta stansburiana*  
Short-horned lizard /*Phrynosoma douglassi*  
Plateau whiptail/ *Sceloporus undulatus consobrinus*

***Wildlife Signs Noted (Common) (Scientific Name)***

Mule deer/ *Odocoileus hemionus*  
Elk/ *Cervus elaphus*

## **1.6 CULTURAL RESOURCES**

No cultural resources have been identified at the mine site to date. Cultural resources requiring protection, including any cemeteries or burial grounds, shall be protected and/or avoided during mining and reclamation activities whenever encountered and where possible. A detailed protocol regarding any identification of cultural resources is discussed in Sec. 4.0, *infra*.

## **2.0 CLOSEOUT PLAN COMPONENTS**

This Closeout was prepared following the guidelines presented in the document *Closeout Plan Guidelines for Existing Mines* (MARB, 1996) that are part of the MARP. Components of the Plan are intended to reclaim the Ambrosia Lake Mine located in Sections 11 and 12 to post-mining use of livestock grazing that would also be consistent with future mining. The general components of the Plan include the following:

- Grade and contour site to pre-existing conditions, backfill areas of excavation
- Headframe demolition and removal
- Seal vents and shafts
- Building demolition and removal
- Remove stockpiled ore
- Bury waste spoils
- Revegetate all disturbed areas

## 2.1 EROSION CONTROL

Erosion from the Site will be controlled by re-contouring the site to pre-existing conditions, utilizing available top soil on site, and vegetating with native species available in an approved mix . See **Fig. A-4; Table 3**.

As a precaution to prevent infiltration, the area near the Section 12 Mine Shaft and headframe will be reclaimed so as to maintain a higher grade. (**Figure A-4**).

Because the mine was previously operational, Mr. James Smith of the MMD stipulated that additional contingency cost should be included in the financial assurance calculation (Ashley Arrossa, INTERA Inc., personal communication, February 1, 2013) to include:

1. The re-engineering of Site Grading, and
2. An accurate , complete topographical survey.

Re-engineering of the Site may include, but is not limited to soil characterization, grading and drainage planning, and storm water prevention planning. In any case, a topological survey for the Site will be necessary to accurately design these items when reclamation for the mine begins.

Reclamation is designed in such a manner that the disturbed area does not contribute to suspended solids above background levels to intermittent and perennial streams. Water quality should be regularly monitored to prevent localized contribution to TSS and TDS levels.

## 2.2 REGRADING AND COVERS

### 2.2.1 Non-economic storage area

Waste spoils (earth, dirt, rock, and stone---separated from uranium deposits) have been, and will continue to be, designated to a specific area of the mining field. Of the two acres dedicated to material handling, 1.5 acres is dedicated to the storage of non-economic spoils.

In reclaiming the non-economic storage area, spoils will be buried and capped according to Figure A-4.

The designated spoil storage area will be cleared, re-graded to pre-existing conditions no greater than 3:1 and covered with clean top soil, and re-seeded with specified mix . **Table 3**.

### 2..2.2 Equipment storage area

After demolition of a fence surrounding the equipment storage area, all metal, rubber (tires), any oil/liquid, wood, concrete, salvageable equipment, would be separated and hauled off site for

appropriate disposal or storage. A Gallup landfill and metal handling facilities in Albuquerque are the closest locations for disposal or recycling.

The Equipment storage area will be cleared, re-graded to pre-existing conditions no greater than 3:1 and covered with clean top soil, and re-seeded with specified mix.

### 2.2.3 Ore stockpile

The Site is an underground mine that has operated in 1959 and 1962 and from 1974-1982. Mining has ceased at the site, but is prepared for future mining, upon approval. All ore stockpiled on the designated area of one-half acre will be removed and delivered as purchased. At close out, ground surface will be cleared, graded, and re-seeded to pre-existing conditions.

### 2.2.4 staging area

The staging area, which encompasses 2 acres will be cleared, graded and re-seeded to pre-existing conditions after removal/disposal of materials, buildings, structures, and equipment in the operating area.

An area near the Section 12 head frame and main shaft was graded to a higher relief during construction of above ground facilities. Reclamation would preserve the elevation as a precaution to prevent infiltration, more specifically identified and described in Fig. A-4.

## 2.3 HEAD FRAME DEMOLITION

Dismantle with torches and impact tools and remove with appropriate crane and metal handling equipment. Metal hauled offsite for disposal.

## 2.4 REMAINING VENTS AND SHAFTS DEMOLITION

The general demolition procedure would consist of removing the elevator platforms and securing the shaft, placing any down-hole material excluding ore (spoils) down the shaft at a slow pace, installing PUF, a cement slurry, and topsoil cover to the void space, then razing the head-frames, and dismantling with cutting torches and impact tools.

The spoils would be backfilled to a depth not exceeding that of twice the diameter of the respective shaft. PUF would be installed to within 12 feet below ground surface. As per the Guidance Document for Part 5 Permitting under the *New Mexico Mining Act* (October 2011), a 10 ft. layer of cement slurry is to be installed as a part of the backfill process. Topsoil would be backfilled for grading and seeding purposes to the surface (2 ft.) and allowed to settle without compaction. The reclamation process may need to be re-assessed should the cement slurry and 2-ft. topsoil layer prevent proper radiation reclamation. See **figure A-2** Typical Shaft Diagram

## 2.5 BUILDING DEMOLITION

Buildings at the site include an office building, a shed, and a maintenance building. The maintenance and office buildings and associated work pad, which are located on private property, may be used post-mining as facilities for a local ranching operation.

In the alternative, materials, including those stored in the buildings, would be separated for disposal or salvage and moved off site. Foundations, concrete, and structures associated with the buildings, including electrical supply, would also be dismantled, separated, and moved off site if necessary,

## 2.6 REVEGETATION

Once above surface facilities and materials of the mine have been dismantled and hauled off site or designated for a post mining use, top soil will be distributed evenly on the Site surface. The Site surface will then be graded to natural topography except for an area near the Section 12 headframe and shaft, which will be reclaimed to maintain a higher grade at the shaft to prevent infiltration.

Topsoil may be removed during clearing and grubbing, but will be placed in a stockpile for re-distribution. Topsoil will not be removed from the site and will be used only for the re-establishment of vegetation. No soil amendments will be used.

The surface will then be scarified to retain moisture and allow for seed capture.

A seed mix specific to Section 11 and 12 will be used. The application rate will be approximately 17 pounds/acre.

The mix to be used includes:

- Western wheatgrass
- Alkalai Sacaton
- Blue Grama
- Galleta
- Thickspike Wheatgrass
- Indian Ricegrass
- Sideoats
- Gramma
- Bottlebrush
- Squirreltail
- Desert Globe mallow
- Palmer Pensetmon
- Blue Flax
- Four-wing Saltbrush
- Winter Fat

## 2.7 REGULATORY COMPLIANCE

No other permits applicable.

## 2.8 SITE ACCESS CONTROL AND FENCING

Surface and mineral rights of the Ambrosia Lake Mine are privately owned. Road entry will be gated with proper signage against unauthorized entry. A portion of the area, if possible, will be left accessible for local cattle to graze in accordance with local ranchers' requests.

## 3.0 RADIOLOGICAL SURVEYS

### Radiological Reclamation

Uranium exploration reclamation involves cleaning all drill hole locations and associated disturbances up to the background gamma radiation levels. Gamma radiation levels should be surveyed following abandonment of the drill hole (vent shaft). In the event that background radiation levels cannot be replicated by using a stable three foot cover, for good cause, the regulatory agencies may re-assess closeout options.

Because exploration has previously occurred at the site and surrounding areas, it is necessary to perform a current radiation survey. As a result of communication with MMD engineer Mr. James Smith, a gamma radiation survey was performed on February 12, 2013 (Ashley Arrossa, INTERA Inc. personal communication, February 1, 2013). The goal of the survey was to obtain radiation levels as a basis of comparison for future reclamation activities. The survey was conducted according to methodology stated in the Guidance Document for Part 3 Permitting under the New Mexico Mining Act (October 2011) as follows:

*"All measurements should be taken with a Ludlum Model 19, or similar gamma radiation measuring device. Readings should be taken one (1) meter above the ground at the staked drill hole location and at any proposed pit locations."*

Additionally, the survey was conducted in an effort to delineate elevated radiation levels throughout the Site at the Section 12 Main Shaft and Headframe, Section 12 Vents (2), Dysart II Shaft and Headframe, Section 11 Vent, and Workers' Quarters area. Results from a previous ground radiation survey performed by the EPA at the Section 12 Main Shaft and Headframe and Dysart II Shaft and Headframe delineated elevated radiation levels to the north, west, and south of the Section 12 Main Headframe, but not to the east. Elevated radiation levels were not delineated in the area near the Dysart II Shaft and Headframe.

### Results of Gamma Survey

Complete results for the INTERA Inc. gamma radiation survey can be found in Table A-2. It was noted that areas with more erosion demonstrated higher relative levels of gamma radiation near the Dysart II shaft and the Section 11 Vent shaft. Gamma radiation levels ranged from 10 – 380

$\mu\text{R/hr}$  throughout the entire Site. General radiation level patterns for each sampling location are discussed in the subsection below.

#### Section 12 Main Shaft and Headframe

Radiation levels were surveyed at the Headframe and in 20 ft intervals radiating in the four cardinal directions as shown on Figure A-3. The radiation level at the Shaft measured at 45  $\mu\text{R/hr}$ . Based on results from the previous EPA survey, the survey extended 100' to the north, west, and south, and 500' to the east. Two "field-background" levels were obtained at 600' and 700' to the east. The two background levels were 50 and 30  $\mu\text{R/hr}$ , respectively. Radiation levels ranged from 30 – 300  $\mu\text{R/hr}$ , with the highest result existing 80' to the west.

#### Section 12 Vent Shaft (East)

Radiation levels were surveyed at the Vent Shaft and in 20 ft intervals radiating in the four cardinal directions to a distance of 100' from the shaft as shown on Figure A-4. The radiation level at the Shaft measured at 20  $\mu\text{R/hr}$ . Radiation levels ranged from 10 – 20  $\mu\text{R/hr}$ , with the highest results existing up to 20' from the Shaft.

#### Section 12 Vent Shaft (West)

Radiation levels were surveyed at the Vent Shaft and in 20 ft intervals radiating in the four cardinal directions to a distance of 100' from the shaft as shown on Figure A-4. The radiation level at the Shaft measured at 380  $\mu\text{R/hr}$ . Radiation levels ranged from 15 – 25  $\mu\text{R/hr}$ , with the highest results existing up to 20' from the Shaft.

#### Dysart II Shaft and Headframe

Radiation levels were surveyed at the Headframe and in 20 ft intervals radiating in the four cardinal directions to a distance of 300' as shown on Figure A-5. The radiation level at the Shaft measured at 200  $\mu\text{R/hr}$ . In general, radiation levels increased with distance up to 100', decreased with distance up to 220', then increased with distance up to 280'. Due to this trend, an additional reading was measured at 290' to the north. Radiation levels ranged from 20 – 230  $\mu\text{R/hr}$ , with the highest result existing 290' to the north.

#### Section 11 Vent Shaft

Radiation levels were surveyed at the Vent Shaft and in 20 ft intervals radiating in the four cardinal directions to a distance of 200' from the shaft as shown on Figure A-6. The radiation level at the Shaft measured at 110  $\mu\text{R/hr}$ . Radiation levels ranged from 45 – 250  $\mu\text{R/hr}$ , with the highest results existing up to 20' from the Shaft.

#### Workers' Quarters

Radiation levels were surveyed at the Workers' Quarters at the 8 locations shown in Figure A-7. These locations were chosen near structures and along the perimeter of the area. The gamma

radiation level remained stable throughout the survey at 1-  $\mu$ R/hr.

#### 4.0 FINANCIAL ASSURANCE COST ESTIMATE

##### 4.1 INTRODUCTION

The Financial Assurance Estimate is based on third-party cost to complete all aspects of reclamation to include re-grading waste and stockpiles, demolition of all structures, removal of all waste, plugging of the shafts and vent holes, ripping and seeding the roads, and re-vegetation of the reclaimed Site. ( See **Table 4.**)

The Site is relatively compact with a disturbed area of about 15 acres. Presently, operation of the mine has been determined to have no direct surface impact on wetlands, spring, perennial or intermittent streams, lakes, rivers, reservoirs or riparian areas. The Site is not designated to be in critical habitat areas as determined in accordance with the federal *Endangered Species Act* of 1973 or in areas determined by the Department of Game and Fish likely to result in an adverse impact on an endangered species designated in accordance with the *Wildlife Conservation Act*, Sections 17-2-37 through 17-2-46 NMSA 1978 or by the State Forestry Division for the *Endangered Plants Act*, section 75-6-1 NMSA 1978. The Site is not located in an area with cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Resources. Additionally, mining or closeout activities are not anticipated to result in a direct impact on ground water. Historically, the site has not been used for heap leaching or dump leaching, nor is it a source expected to result in point or non-point surface or sub-surface release of acid or other toxic substances or other toxic substances.

Mining and reclamation is designed and operated in such a manner that disturbance is minimal. . Cultural resources requiring protection, including any cemeteries or burial grounds, shall be protected and/or avoided during mining and reclamation activities whenever possible. Any potential interaction with cultural resources will be avoided to prevent impacts to historic properties. A historic property is any prehistoric or historic site eligible to the NRHP or unevaluated cultural resources .Roads and Project facilities would be sited as much as possible to avoid cultural resource impacts. If avoidance is not possible or is not adequate to prevent adverse effects, NMCC would undertake data recovery from such sites. Development of a treatment plan, data recovery, archeological documentation and report preparation would be based on the Secretary of the Interior's "Standards and Guidelines for New Mexico Copper Corporation Permit Application Package – Copper Flat Project Mine Operation and Reclamation Plan 63 July 18, 2012 Archeology and Historic Preservation," 48 CFR § 44716 (September 29, 1983), as amended or replaced. If an unevaluated site could not be avoided, additional information would be gathered and the site would be evaluated. If the site does not meet eligibility criteria as defined by the New Mexico SHPO, no further cultural work would be performed. If a site meets eligibility criteria, a data recovery plan or appropriate mitigation would be completed.

Prior to commencement of construction an archaeologist will be onsite to issue clearances for construction activities and to provide guidance and expertise to ensure the protection of cultural

properties. The appropriate agency will be notified immediately if additional cultural sites are discovered during these activities. Mitigation strategies will be developed in consultation with the agency.

#### 4.2 COST ESTIMATING METHODOLOGY

The *MMD Guidance to Mine Operators for Calculating Reclamation Costs in Net Present Value*, December, 2004 was used for cost estimate.

#### 4.3 RECLAMATION SEQUENCE

Since the Site is expected to presents no adverse impact to cultural or environmental resources, applicant proposes a three year period to complete the reclamation sequence after cessation of all mining activity in order to use applicant's on-site equipment and labor to significantly reduce expenditure vis-a-vis a third party cost.

A general concept of the reclamation activities was formulated to develop financial assurance calculations. Reclamation of the Sections 11 and 12 mine sites would be divided into four phases:

1. Mobilization and demobilization,
  - a. Transportation of materials off-site
  - b. Bury spoils and safeguard
2. Tear down of Buildings
  - a. office building
  - b. maintenance building
  - c. storage shed
3. Demolition, including,
  - a. Dysart II Head-frame
  - b. Remaining vents
  - c. Main shaft and head frame
4. Site grading and reseeding.

In the unlikely event, applicant is not able to complete the reclamation sequence, it is estimated that the conservative and robust cost estimate at A-1 would allow a third party to complete reclamation at the Site in six weeks.

#### 4.4 COST ESTIMATES

The reclamation activities are estimated at \$213,812.50 (2019 dollars adjusted for 3 % i = \$255,313.51) (*See Table 4.*) including the cost for mobilization, demolition, and site grading/seeding as outlined in the General Reclamation Narrative. Because the mine was

previously operational, Mr. James Smith of the MMD stipulated that additional contingency costs for the following items should be included in the financial assurance calculation (Ashley Arrossa, INTERA Inc. personal communication, February 1, 2013):

1. The re-engineering of Site grading, and
2. An accurate, complete topographical survey.

These items have been assumed to cost \$32,582.12 and \$21,721.41, respectively, for a grand total of \$271,778. Re-engineering of the Site may include, but is not limited to soil characterization, grading and drainage planning, storm-water pollution prevention planning. As such, a topological survey for the Site will be necessary to accurately design these items. These items would need to be completed when reclamation for the mine begins. Detailed cost estimates can be found on Table 4.

#### 4.5 COST ESTIMATE CONFIDENCE

The Scope of work presented in the Plan provides the basis for the reclamation cost estimate. The reclamation costs are prepared based on industry-wide standards applicable to the local area and are conservative estimates. The Plan provides the estimate cost and supporting documentation for a third party to reclaim the Ambrosia Lake mine in the unlikely event of forfeiture.

A high level of confidence accompanies the proposed reclamation such that a third party contractor or Ambrosia Lake Mine applicant could complete the reclamation at or below the cost estimated provided at A-1.

The cost estimate was prepared for financial assurance purposes and is reasonably conservative. Actual construction costs may be lower.

#### 5.0 NOTARIZED STATEMENT OF APPLICANT

#### 6.0 REFERENCES

#### 7.0 FIGURES AND TABLES

Pursuant to NMAC 19.10.5.506 (J) (6)

I certify that I agree to comply with the reclamation standards and performance requirements of the permit, 19.10 NMAC, and the Act, and allow the Director to enter the permit area without delay for the purpose of conducting inspection during mining and reclamation.

Signature of applicant: George Lotspeich

Printed name of Applicant: George Lotspeich

Title/Position: Owner/President/intended agent for service of process

Date:

The foregoing application was personally acknowledged before me this 29<sup>th</sup> day of January, 2014 by George Lotspeich.

STATE OF NEW MEXICO )  
  )ss.  
COUNTY OF BERNALILLO )

Witness my hand and official seal.

Jeanne Cameron Washburn  
Notary Public

My commission expires: 8/11/14

(seal)



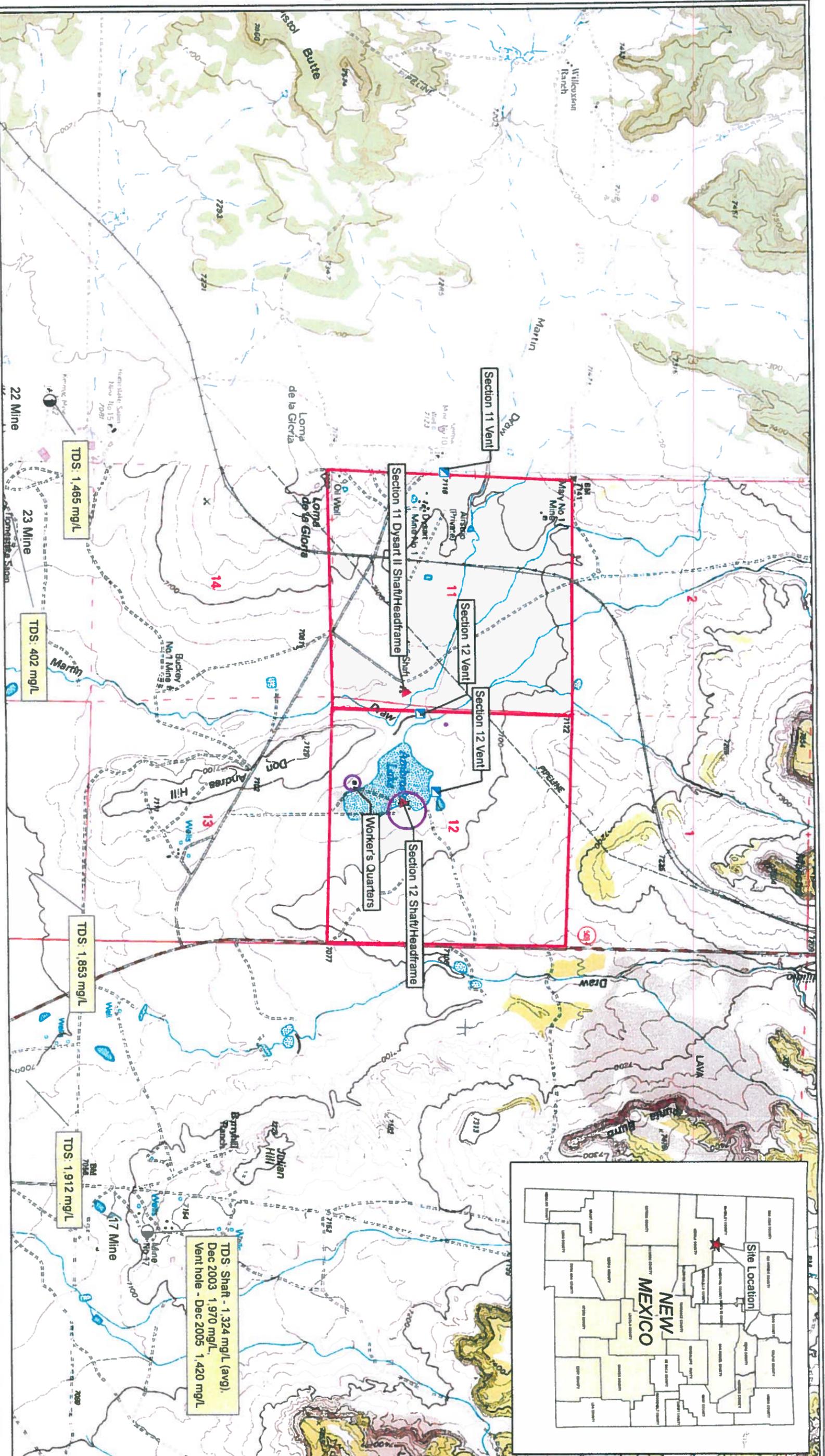
OFFICIAL SEAL  
Jeanne Cameron Washburn  
NOTARY PUBLIC-STATE OF NEW MEXICO  
My commission expires: 8/11/14

## 6.0 REFERENCES

*Environmental Assessment of Remedial Action at the Ambrosia Lake Uranium Tailing Site, Ambrosia Lake, New Mexico, United States Department of Energy (DOE) 1987.*

*Pre-CERCLIS Screening Assessment of the Dysart # 2 Mine, New Mexico Office of the State Engineer, August 4, 2010.*

*Subpart 3 Minimal Impact New Mining Operations Application for Permit in re: Southwest Resources, Inc. (George Lotspeich), Intera, March 8, 2013.*



**Figure 1**  
**Site Location Map**  
 Southwest Resources, Inc.

**INTEGRA**

2,000 1,000 0 2,000  
 Feet

**Sources:**  
 Mines/shafts (Sections 17, 22, 23) – Survey by WHPacific, 2011.  
 USGS Topographic Maps, Ambrosia Lake, Quadrangles, 1980.  
 Contour Interval 20 Feet Total Dissolved Solids (TDS) concentrations:  
 NMED Mine Water Database. Approximate locations inferred from  
 Section identified.  
 Concentrations were averaged based on location.

**Legend**

- Vent Hole Location
- Shaft Location
- Area Mine Location
- Railroad
- Distributed Areas = 15 acres
- Proposed Permit Area

SOUTHWEST RESOURCES SOUTHWEST QUARTER OF SECTION 12, 14N 10W SHOWING SHAFT AND BUILDINGS AT 7,499 FEET.

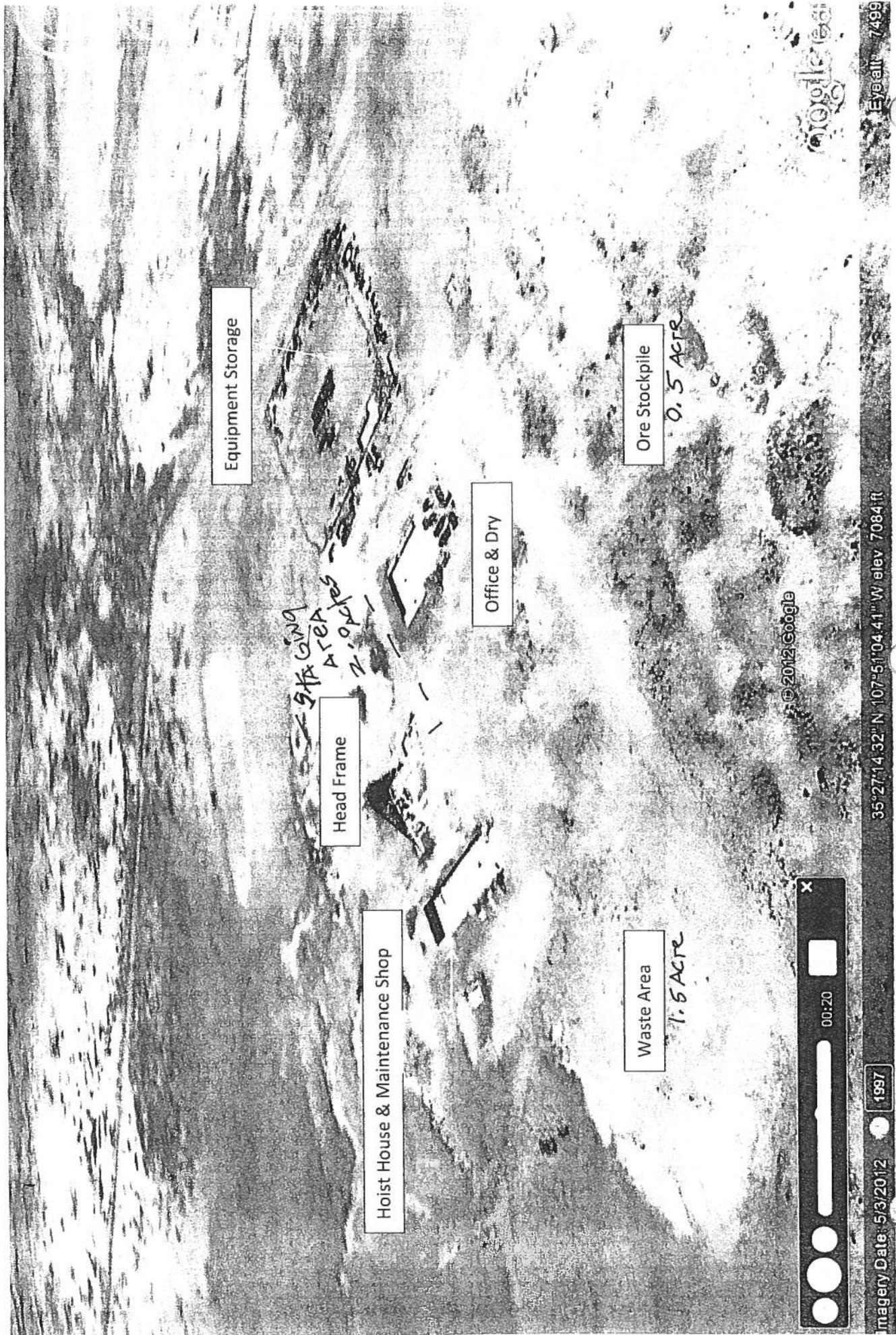
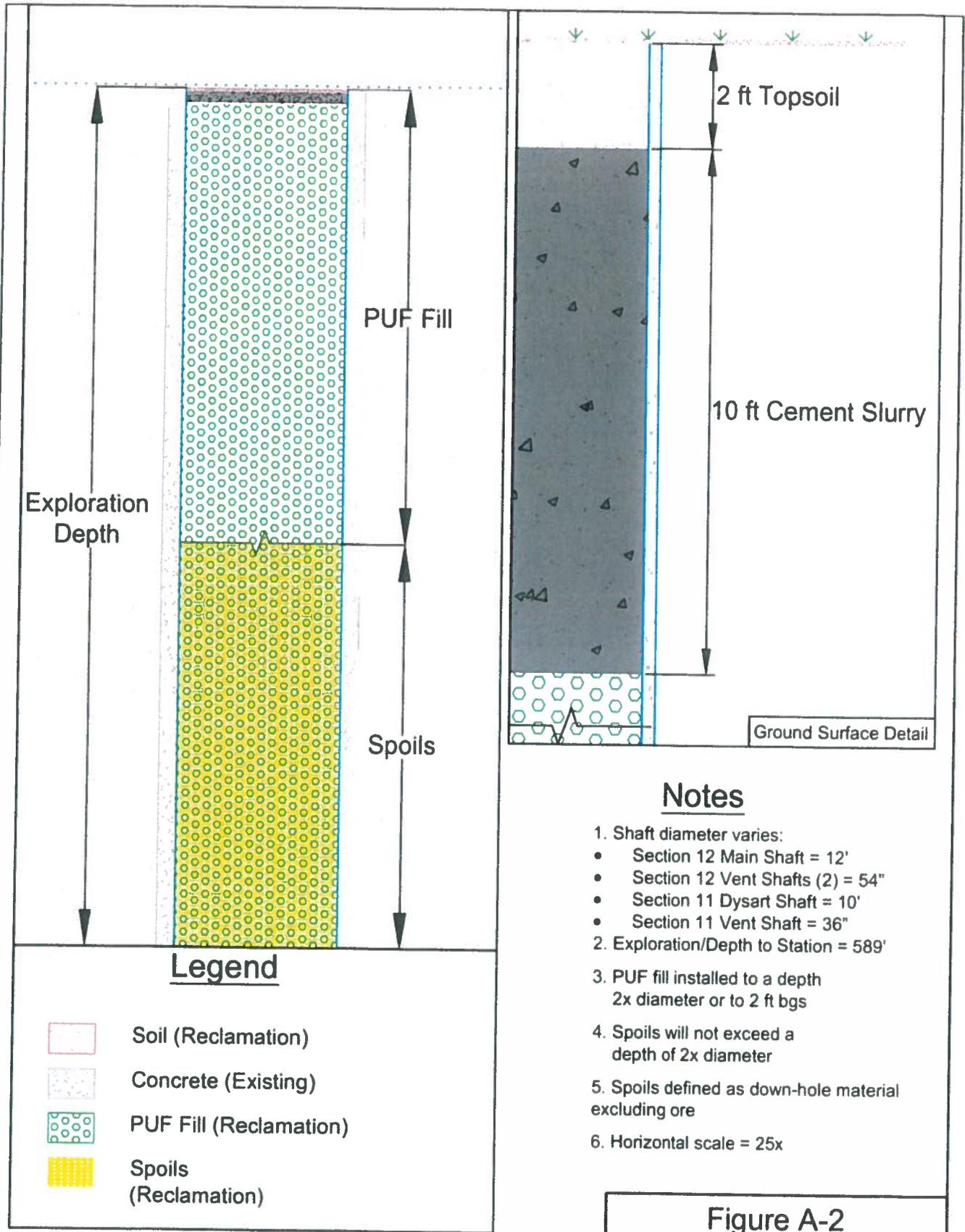


figure A-1

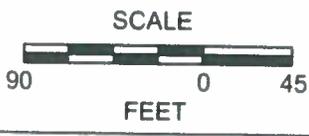


**Figure A-2  
Typical Shaft Diagram**

Southwest Resources, Inc.



Source(s): Guidance Document for Part 3 Permitting under New Mexico Mining Act (October, 2011)



SOUTHWEST RESOURCES – SHAFT ON SOUTHEAST CORNER, SECTION 11. 14N, 10W

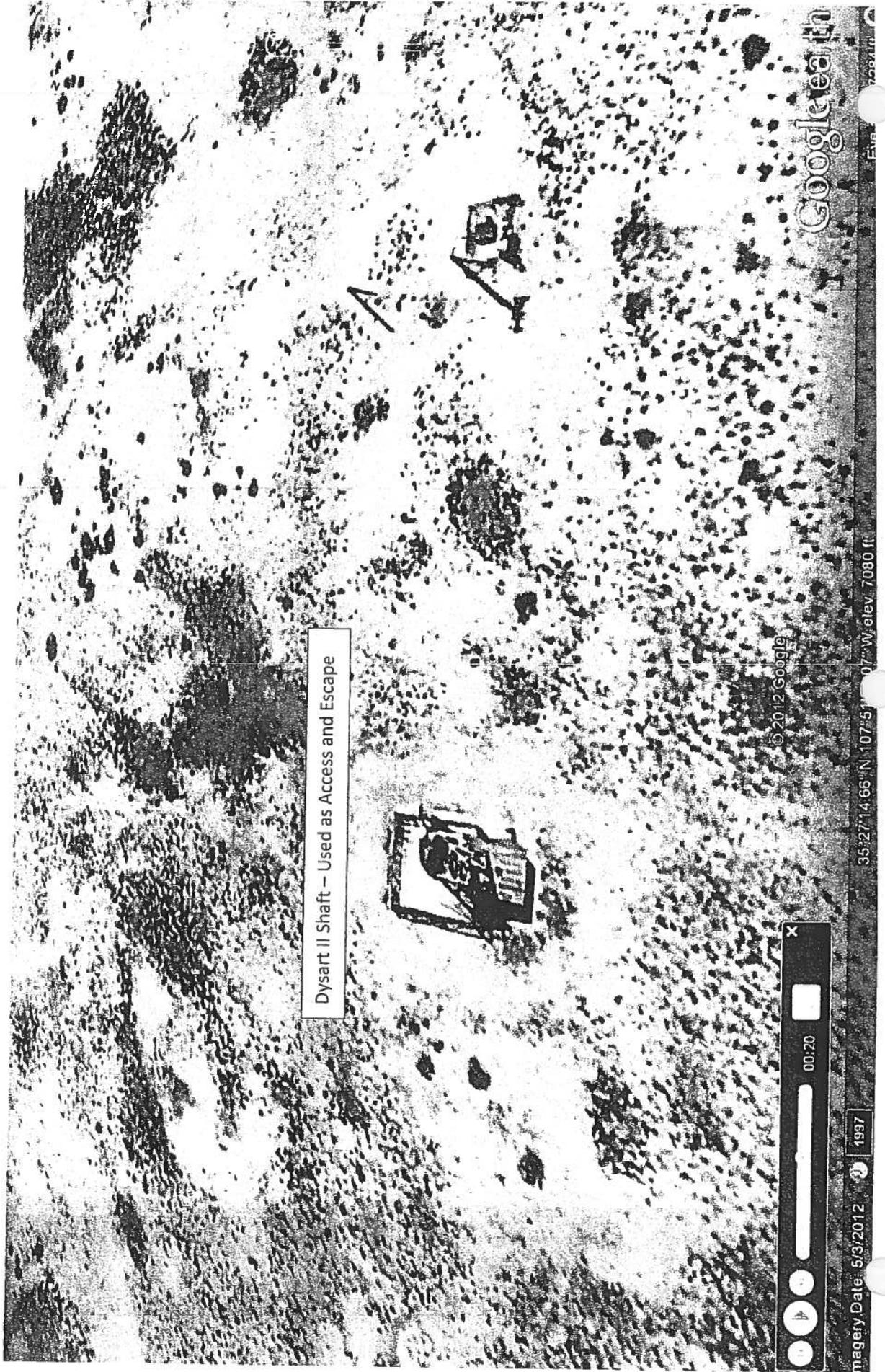
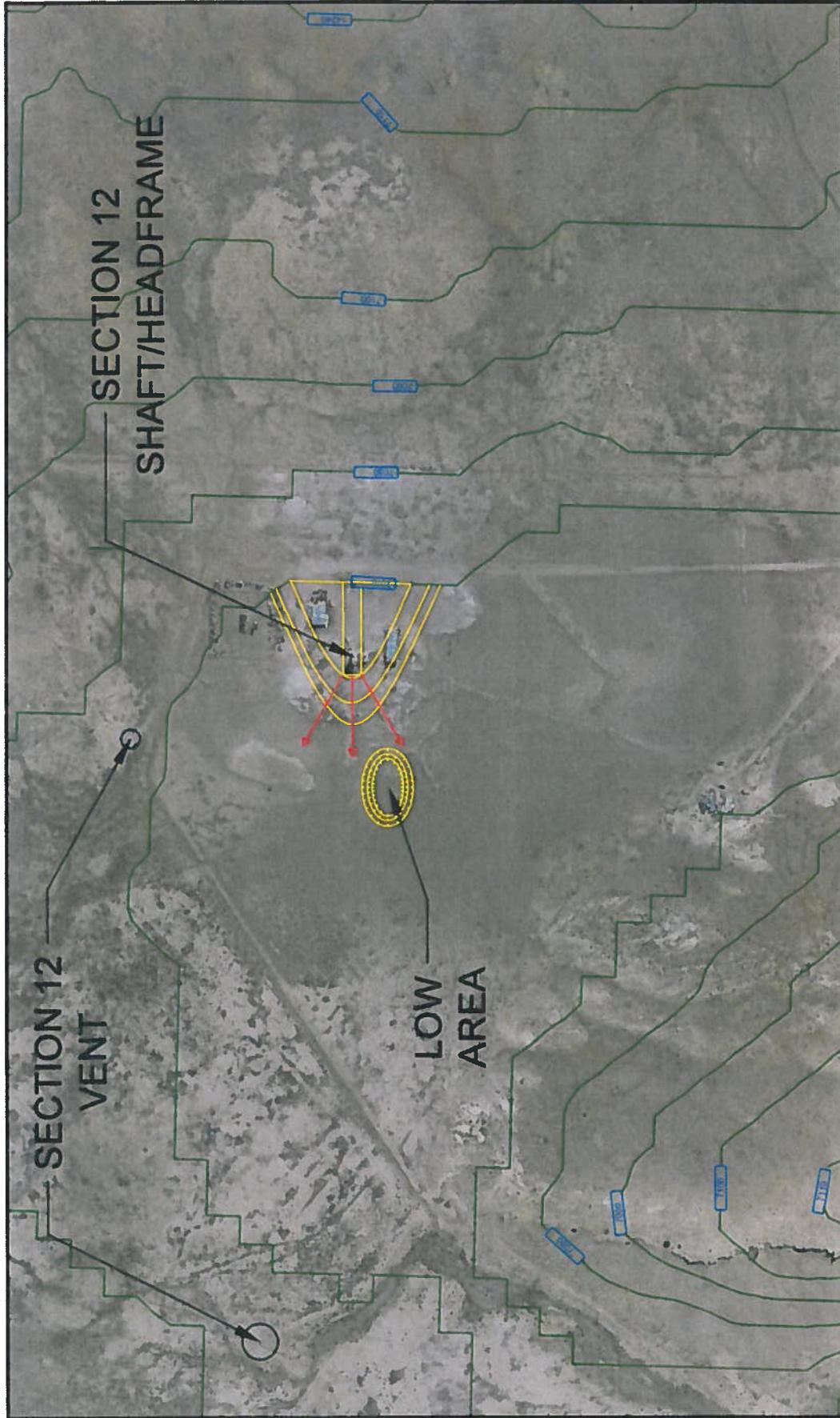


figure A-3



**LEGEND**

|   |                                     |
|---|-------------------------------------|
|  | EXISTING CONTOUR INTERVAL (10 FOOT) |
|  | EXISTING CONTOUR INTERVAL (10 FOOT) |
|  | PROPOSED GRADING                    |
|  | SLOPE DIRECTION                     |



Source: USGS DEM  
 Note: Low Area assumed to be approximately 7065 ft AMSD



**Figure A-4**  
**Conceptual Reclamation Grading Plan**  
 Southwest Resources, Inc.



Sources:  
Aerial – RGIS website, dated 2011; GoogleEarth, dated 2012  
Mines/shafts – Gamma Radiation Survey conducted by INTERA Inc. on February 12, 2013.

**Figure A-3**  
Section 12 Shaft/Headframe  
Gamma Survey Results  
Southwest Resources, Inc.  
Part 3 Permit



**Legend**

Results (R/hr)

- 0-30
- 35-70
- 75-100
- 110-180
- 190-380

▭ Distributed Area

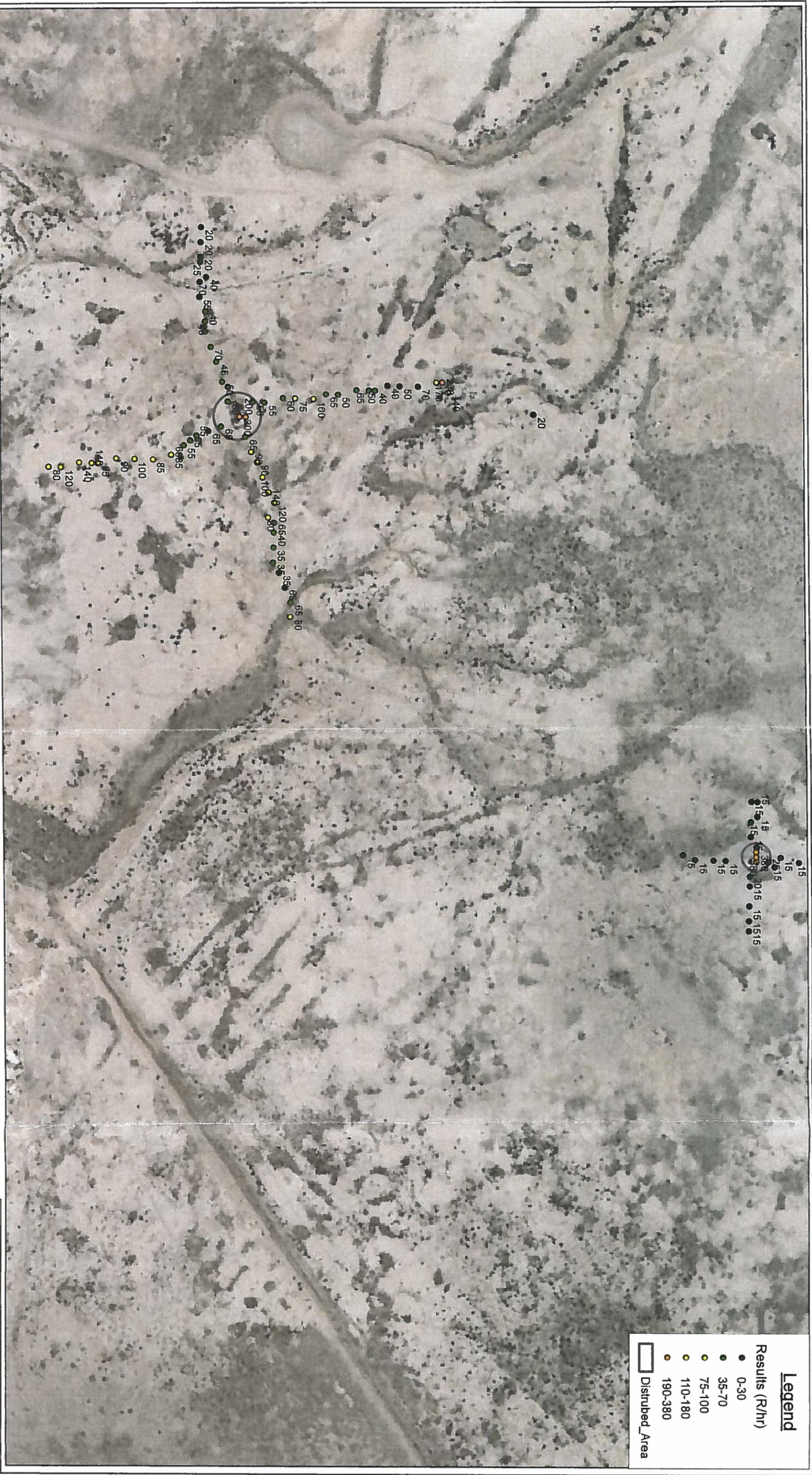
Sources:  
 Aerial – RGIS website, dated 2011; GoogleEarth, dated 2012  
 Mines/shafts – Gamma Radiation Survey conducted by INTERA Inc. on February 12, 2013.

N

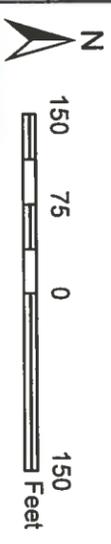
150 75 0 150

Feet

**Figure A-4**  
 Section 12 Vents  
 Gamma Survey Results  
 Southwest Resources, Inc.  
 Part 3 Permit

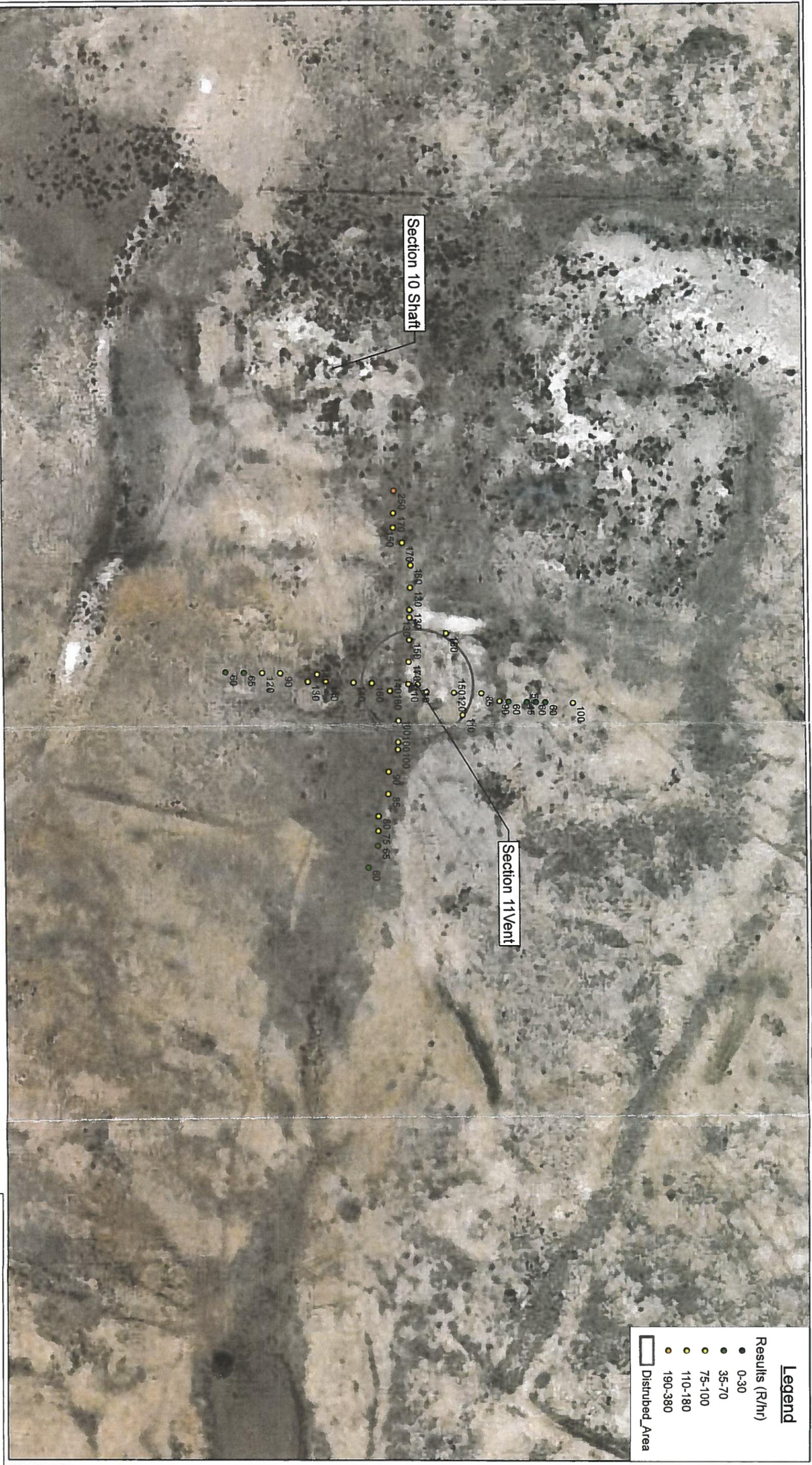


- Legend**
- Results (R/hr)
- 0-30
  - 35-70
  - 75-100
  - 110-180
  - 190-380
- ▭ Disturbed Area



Sources:  
 Aerial – RGIS website, dated 2011; GoogleEarth, dated 2012  
 Mines/shafts – Gamma Radiation Survey conducted by INTERA Inc. on February 12, 2013.

**Figure A-5**  
 Dysart II Shaft/Headframe  
 Gamma Survey Results  
 Southwest Resources, Inc.  
 Part 3 Permit



Sources:  
 Aerial – RGIS website, dated 2011; GoogleEarth, dated 2012  
 Mines/shafts – Gamma Radiation Survey conducted by INTERA Inc. on February 12, 2013.

**Figure A-6**  
**Section 11 Vent**  
**Gamma Survey Results**  
 Southwest Resources, Inc.  
 Part 3 Permit



19.10.2 fees for Section 12 Mine application

| Reference             | Fee            | Reason  |
|-----------------------|----------------|---|
| 19.10.2.201.a.1       | \$1,000        | Base fee application  |
| .2                    | \$225          | 15 acres disturbance @ \$15/acre  |
| .3                    | \$500<br>\$500 | In accordance with 19.10.2.203 NMAC   |
| .4                    | \$1500         | in accordance with Subsection K of 19.10.2.201 NMAC. Total disturbance 10 to 30 acres |
| Total application fee | \$3,725        |   |

Table 1

## GROUND WATER INFORMATION

- A. Provide an estimate of depth to ground water and the total dissolved solids concentration.

Depth to ground water (ft.) ~630 ft. as measured during Section 12 (SW ¼) shaft installation in mid-late 1970's (See table below for additional regional water level information)

| Distance from<br>Dysart II (miles) | OSE<br>record number | Owner's last name              | finish date | depth<br>well (ft) | depth<br>to water (ft) |
|------------------------------------|----------------------|--------------------------------|-------------|--------------------|------------------------|
| 1.0 – 2.0                          | B 00366              | RIO ALGOM MINING LLC           | 12/31/1955  | 760                | 0                      |
|                                    | B 00372              | SABRE-PINON CORPORATION        | 09/12/1956  | 796                | 0                      |
|                                    | B 00373              | RIO ALGOM MINING LLC           | 12/31/1956  | 1003               | 0                      |
|                                    | B 00994              | RIO ALGOM MINING LLC           | 01/02/1958  | 827                | 0                      |
| 2.0 – 3.0                          | B 00143              | ANDREWS                        | 07/18/1960  | 90                 | 60                     |
|                                    | B 00362              | RIO ALGOM MINING LLC           | 11/30/1956  | 3093               | 0                      |
|                                    | B 00363              | RIO ALGOM MINING LLC           | 04/30/1956  | 745                | 0                      |
|                                    | B 00371              | SABRE-PINON CORPORATION        | 08/25/1956  | 752                | 0                      |
|                                    | B 00522              | UNITED NUCLEAR-HOMESTAKE PTNRS | 02/07/1978  | 70                 | 0                      |
|                                    | B 00522              | UNITED NUCLEAR-HOMESTAKE PTNRS | 02/07/1978  | 70                 | 0                      |
|                                    | B 00994              | RIO ALGOM MINING LLC           | 09/18/1958  | 857                | 0                      |
| 3.0 – 4.0                          | B 01087              | ALBERS BROTHERS                | 05/25/1985  | 651                | 566                    |
|                                    | B 01246              | ELKINS                         | 04/29/1992  | 1200               | 700                    |

Note: Table source: Memorandum from Dana Bahar, Manager, Superfund Oversight Section Ground Water Quality Bureau, New Mexico Environment Department to LaDonna Turner, Site Assessment Manager Technical and Enforcement Branch U.S. Environmental Protection Agency, Region 6: "Pre-CERCLIS screening assessment of the Dysart #2 mine (Grants Mining District), McKinley County, New Mexico." Dated August 4, 2010. <ftp://ftp.nmenv.state.nm.us/.../Dysart%20%232%2006162010.doc> Accessed February 18, 2013.

- F. Describe how topsoil or topdressing will be salvaged, stockpiled and distributed for the re-establishment of vegetation:

See Appendix A, Further Comments for Reclamation Plan (§ 304.D.8).

- G. Describe what kind of seed bed preparation will take place prior to seeding. What soil amendments will be added? Scarification of the seed bed needs to take place. Will this involve discing or ripping?

See Appendix A, Further Comments for Reclamation Plan (§ 304.D.8).

- H. Describe in detail the plant species to be used in the re-establishment of vegetation:

| <u>Plant Name:</u> _____  | <u>Rate of application (lb/ac)</u>            |
|---------------------------|---|
| Western wheatgrass        | (See comment below for all application rates) |
| Alkali Sacaton            |   |
| Blue Grama                |   |
| Galleta                   |   |
| Thickspike Wheatgrass     |   |
| Indian Ricegrass          |   |
| Sideoats                  |   |
| Gramma                    |   |
| Bottlebrush               |   |
| Squirreltail              |   |
| Desert globe mallow       |   |
| Palmer Pensetmon          |   |
| Rocky Mountain Penestemon |   |
| Blue Flax                 |   |
| Four-wing Saltbrush       |   |
| Winter Fat                |   |

Application rate will be approximately 17 pounds/acre. Only seed specific to Section 11 and 12 will be used.

Table 4 Reclamation Spreadsheet for Financial Assurance Calculation

Southwest Resources, Inc. Ambrosia Lake Sections 11 and 12

| Item No. | Item Description                              | Total Price 2013 | Total Price 2019<br>i= 3% |
|----------|---|------------------|---------------------------|
| 1        | <b>SECTION 12 Mine</b>                        |                  |                           |
| 1a       | <b>Demolish and Scrap Headframe</b>           |                  |                           |
|          | Elevator                                      | \$1,200.00       | \$1,432.92                |
|          | Cables  | \$1,000.00       | \$1,194.10                |
|          | Dismantle Headframe                           | \$32,000.00      | \$38,211.20               |
|          | Loading                                       | \$3,000.00       | \$3,582.30                |
|          | Hauling                                       | \$4,000.00       | \$4,776.40                |
|          | Disposal                                      | \$3,500.00       | \$4,179.35                |
|          | Disposal of Footings/Concrete Pads            | \$1,750.00       | \$2,089.68                |
|          | Electric Disconnection                        | \$250.00         | \$298.53                  |
|          | General Site Cleaning                         | \$3,000.00       | \$3,582.30                |
|          | SUBTOTAL                                      | \$49,700.00      | \$59,346.77               |
| 1b       | <b>Abandon Main Shaft (diameter=12")</b>      |                  |                           |
|          | SiteClearingandGrubbing(assc.debris&on-siteSp | \$2,000.00       | \$2,388.20                |
|          | Secure/Fill Shaft with Spoils                 | \$3,000.00       | \$3,582.30                |
|          | Install PUF                                   | \$19,000.00      | \$22,687.90               |
|          | Install cement slurry                         | \$3,000.00       | \$3,582.30                |
|          | Install topsoil                               | \$500.00         | \$597.05                  |
|          | Remove and Dispose concrete&metal debris      | \$1,350.00       | \$1,612.04                |
|          | SUBTOTAL                                      | \$28,850.00      | \$34,449.79               |
| 1c       | <b>Abandon Vent Shaft1B (diameter=54")</b>    |                  |                           |
|          | SiteClearingandGrubbing(assc.debris&on-siteSp | \$300.00         | \$358.23                  |
|          | Secure/Fill Shaft with Spoils                 | \$400.00         | \$477.64                  |
|          | Install PUF                                   | \$2,000.00       | \$2,388.20                |
|          | Install cement slurry                         | \$650.00         | \$776.17                  |
|          | Install topsoil                               | \$100.00         | \$119.41                  |
|          | Remove and Dispose concrete&metal debris      | \$300.00         | \$358.23                  |
|          | SUBTOTAL                                      | \$3,750.00       | \$4,477.88                |
| 1d       | <b>Abandon Vent Shaft2B (diameter=54")</b>    |                  |                           |
|          | SiteClearingandGrubbing(assc.debris&on-siteSp | \$300.00         | \$358.23                  |
|          | Secure/Fill Shaft with Spoils                 | \$400.00         | \$477.64                  |
|          | Install PUF                                   | \$2,000.00       | \$2,388.20                |
|          | Install cement slurry                         | \$650.00         | \$776.17                  |
|          | Install topsoil                               | \$100.00         | \$119.41                  |
|          | Remove and Dispose concrete&metal debris      | \$300.00         | \$358.23                  |
|          | SUBTOTAL                                      | \$3,750.00       | \$4,477.88                |

**Table 4 Reclamation Spreadsheet for Financial Assurance Calculation**

Southwest Resources, Inc. Ambrosia Lake Sections 11 and 12

| Item No. | Item Description                                | Total Price 2013 | Total Price 2019<br>i= 3% |
|----------|---|------------------|---------------------------|
| 1e       | <b>Reclaim and Scrap Miscellaneous</b>          |                  |                           |
|          | Site Clearing and Grubbing                      | \$3,000.00       | \$3,582.30                |
|          | Loading   | \$6,000.00       | \$7,164.60                |
|          | Hauling   | \$4,000.00       | \$4,776.40                |
|          | Disposal  | \$7,000.00       | \$8,358.70                |
|          | SUBTOTAL  | \$20,000.00      | \$23,882.00               |
| 1f       | <b>Light Grade and Reseed</b>                   |                  |                           |
|          | SUBTOTAL  | \$900.00         | \$1,074.69                |
|          | SECTION 12 SUBTOTAL                             | \$106,950.00     | \$127,709.00              |
| 2        | <b>Section 11</b>                               |                  |                           |
| 2a       | <b>Demolish and Scrap Headframe</b>             |                  |                           |
|          | Elevator  | \$1,500.00       | \$1,791.15                |
|          | Cables  | \$1,500.00       | \$1,791.15                |
|          | Dismantle Headframe                             | \$13,000.00      | \$15,523.30               |
|          | Loading   | \$1,200.00       | \$1,432.92                |
|          | Hauling   | \$2,000.00       | \$2,388.20                |
|          | Disposal  | \$3,500.00       | \$4,179.35                |
|          | Disposal of Footings/Concrete Pads              | \$2,000.00       | \$2,388.20                |
|          | Electric Disconnection                          | \$250.00         | \$298.53                  |
|          | General Site Cleaning                           | \$2,050.00       | \$2,447.91                |
|          | SUBTOTAL  | \$27,000.00      | \$32,240.70               |
| 2b       | <b>Abandon Dysart II Shaft C (diameter=10')</b> |                  |                           |
|          | Dismantle above ground fixtures                 | \$2,000.00       | \$2,388.20                |
|          | Secure/Fill Shaft with Spoils                   | \$3,200.00       | \$3,821.12                |
|          | Install PUF                                     | \$7,000.00       | \$8,358.70                |
|          | Install cement slurry                           | \$2,000.00       | \$2,388.20                |
|          | Install topsoil                                 | \$550.00         | \$656.76                  |
|          | Loading   | \$1,000.00       | \$1,194.10                |
|          | Hauling   | \$2,000.00       | \$2,388.20                |
|          | Disposal  | \$500.00         | \$597.05                  |
|          | Disposal of Footings/Concrete Pads              | \$1,000.00       | \$1,194.10                |
|          | General Site Cleaning                           | \$500.00         | \$597.05                  |
|          | SUBTOTAL  | \$19,750.00      | \$23,583.48               |

**Table 4 Reclamation Spreadsheet for Financial Assurance Calculation**

Southwest Resources, Inc. Ambrosia Lake Sections 11 and 12

| Item No.  | Item Description                           | Total Price 2013    | Total Price 2019<br>i= 3% |
|-----------|--|---------------------|---------------------------|
| <b>2c</b> | <b>Abandon Vent Shaft D (diameter=36")</b> |                     |                           |
|           | Dismantle above ground fixtures            | \$100.00            | \$119.41                  |
|           | Secure/Fill Shaft with Spoils              | \$100.00            | \$119.41                  |
|           | Install PUF                                | \$800.00            | \$955.28                  |
|           | Install cement slurry                      | \$250.00            | \$298.53                  |
|           | Install topsoil                            | \$50.00             | \$59.71                   |
|           | Loading                                    | \$50.00             | \$59.71                   |
|           | Hauling                                    | \$1,000.00          | \$1,194.10                |
|           | Disposal                                   | \$50.00             | \$59.71                   |
|           | Disposal of Footings/Concrete Pads         | \$100.00            | \$119.41                  |
|           | General Site Cleaning                      | \$100.00            | \$119.41                  |
|           | <b>SUBTOTAL</b>                            | <b>\$2,600.00</b>   | <b>\$3,104.66</b>         |
| <b>2d</b> | <b>Reclaim and Scrap Miscellaneous</b>     |                     |                           |
|           | Dismantle and consolidate scrap metal      | \$5,000.00          | \$5,970.50                |
|           | Hauling                                    | \$5,000.00          | \$5,970.50                |
|           | Disposal of Scrap Metal                    | \$3,850.00          | \$4,597.29                |
|           | <b>SUBTOTAL</b>                            | <b>\$13,850.00</b>  | <b>\$16,538.29</b>        |
| <b>2e</b> | <b>Light Grade and Reseed</b>              |                     |                           |
|           | <b>SUBTOTAL</b>                            | <b>\$900.00</b>     | <b>\$1,074.69</b>         |
|           | <b>SECTION 11 SUBTOTAL</b>                 | <b>\$64,100.00</b>  | <b>\$76,541.81</b>        |
|           | <b>SECTION 12 SUBTOTAL</b>                 | <b>\$106,950.00</b> | <b>\$127,709.00</b>       |
|           | <b>GRAND SUBTOTAL</b>                      | <b>\$171,050.00</b> | <b>\$204,250.81</b>       |
|           | Re-engineering Contingency                 | \$25,657.50         | \$30,637.62               |
|           | Site Survey Contingency                    | \$17,105.00         | \$20,425.08               |
|           | <b>GRAND TOTAL</b>                         | <b>\$213,812.50</b> | <b>\$255,313.51</b>       |

Notes : 1)An inflation rate of 3% was applied to current cost estimate to obtain future value using using the formula provided in the MMD Guidance to Mine Operators for calculating reclamation net present value, December, 2004 document.  $FV = PV * (1+i)^n$ . Where FV=future value, PV= present value, i=inflation rate, and n=# of years (6)

2)Contingency rates were applied to the Grand Subtotal to obtain sums for the reengineering and site survey costs; reengineering contingency rate=15%, site survey contingency rate=10%

3) All cost estimate done on a lump sum basis from previously relevant experience.

**Table A-1**  
**Gamma Survey Values**

Southwest Resrouces, Inc.  
Ambrosia Lake Sections 11 and 12

| Section 12<br>Main Shaft and Head Frame |           |                     |
|---|-----------|---------------------|
| Distance                                | Direction | Value ( $\mu$ R/hr) |
| SEC 12 MS                               | -         | 45                  |
| 20                                      | N         | 90                  |
| 40                                      | N         | 85                  |
| 60                                      | N         | 70                  |
| 80                                      | N         | 65                  |
| 100                                     | N         | 65                  |
| 20                                      | W         | 130                 |
| 40                                      | W         | 190                 |
| 60                                      | W         | 195                 |
| 80                                      | W         | 300                 |
| 100                                     | W         | 240                 |
| 20                                      | S         | 230                 |
| 40                                      | S         | 190                 |
| 60                                      | S         | 120                 |
| 80                                      | S         | 90                  |
| 100                                     | S         | 30                  |
| 20                                      | E         | 170                 |
| 40                                      | E         | 170                 |
| 60                                      | E         | 220                 |
| 80                                      | E         | 220                 |
| 100                                     | E         | 220                 |
| 120                                     | E         | 180                 |
| 140                                     | E         | 180                 |
| 160                                     | E         | 180                 |
| 180                                     | E         | 180                 |
| 200                                     | E         | 180                 |
| 220                                     | E         | 180                 |
| 240                                     | E         | 120                 |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-3 for plot of survey data.

**Table A-1**  
**Gamma Survey Values**

Southwest Resources, Inc.  
Ambrosia Lake Sections 11 and 12

| <b>Section 12</b>                            |           |                     |
|--|-----------|---------------------|
| <b>Main Shaft and Head Frame (continued)</b> |           |                     |
| Distance                                     | Direction | Value ( $\mu$ R/hr) |
| 260  | E         | 220                 |
| 280  | E         | 170                 |
| 300  | E         | 220                 |
| 320  | E         | 160                 |
| 340  | E         | 140                 |
| 360  | E         | 120                 |
| 380  | E         | 160                 |
| 400  | E         | 150                 |
| 420  | E         | 140                 |
| 440  | E         | 140                 |
| 460  | E         | 150                 |
| 480  | E         | 150                 |
| 500  | E         | 130                 |
| 520  | E         | 150                 |
| 540  | E         | 170                 |
| 600  | E         | 50                  |
| 700  | E         | 30                  |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-3 for plot of survey data.

**Table A-1**  
**Gamma Survey Values**

Southwest Resources, Inc.  
Ambrosia Lake Sections 11 and 12

| Section 12 Vent (East) |           |                     |
|------------------------|-----------|---------------------|
| Distance               | Direction | Value ( $\mu$ R/hr) |
| Shaft                  | -         | 20                  |
|                        | -         |                     |
|                        | -         |                     |
| 20                     | N         | 20                  |
| 40                     | N         | 15                  |
| 60                     | N         | 15                  |
| 80                     | N         | 10                  |
| 100                    | N         | 15                  |
| 20                     | W         | 20                  |
| 40                     | W         | 15                  |
| 60                     | W         | 15                  |
| 80                     | W         | 15                  |
| 100                    | W         | 15                  |
| 20                     | S         | 20                  |
| 40                     | S         | 20                  |
| 60                     | S         | 15                  |
| 80                     | S         | 15                  |
| 100                    | S         | 15                  |
| 20                     | E         | 15                  |
| 40                     | E         | 15                  |
| 60                     | E         | 15                  |
| 80                     | E         | 15                  |
| 100                    | E         | 15                  |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-4 for plot of survey data.

**Table A-1**  
**Gamma Survey Values**

Southwest Resrouces, Inc.  
Ambrosia Lake Sections 11 and 12

| Section 12 Vent (West) |           |               |
|------------------------|-----------|---------------|
| Distance               | Direction | Value (μR/hr) |
| Shaft                  | -         | 380           |
|                        |           |               |
|                        |           |               |
| 20                     | N         | 25            |
| 40                     | N         | 15            |
| 60                     | N         | 15            |
| 80                     | N         | 15            |
| 100                    | N         | 15            |
| 20                     | W         | 20            |
| 40                     | W         | 15            |
| 60                     | W         | 15            |
| 80                     | W         | 15            |
| 100                    | W         | 15            |
| 20                     | S         | 15            |
| 40                     | S         | 15            |
| 60                     | S         | 15            |
| 80                     | S         | 15            |
| 100                    | S         | 15            |
| 20                     | E         | 20            |
| 40                     | E         | 15            |
| 60                     | E         | 15            |
| 80                     | E         | 15            |
| 100                    | E         | 15            |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-4 for plot of survey data.

**Table A-1**  
**Gamma Survey Values**

Southwest Resrouces, Inc.  
Ambrosia Lake Sections 11 and 12

| Dysart II |           |                     |
|-----------|-----------|---------------------|
| Distance  | Direction | Value ( $\mu$ R/hr) |
| Shaft     | -         | 200                 |
| 20        | N         | 50                  |
| 40        | N         | 55                  |
| 60        | N         | 60                  |
| 80        | N         | 75                  |
| 100       | N         | 100                 |
| 120       | N         | 65                  |
| 140       | N         | 50                  |
| 160       | N         | 65                  |
| 180       | N         | 50                  |
| 200       | N         | 40                  |
| 220       | N         | 40                  |
| 240       | N         | 50                  |
| 260       | N         | 70                  |
| 280       | N         | 170                 |
| 290       | N         | 230                 |
| 300       | N         | 140                 |
| 340       | E         | 20                  |
| 20        | E         | 65                  |
| 40        | E         | 90                  |
| 60        | E         | 90                  |
| 80        | E         | 100                 |
| 100       | E         | 140                 |
| 120       | E         | 120                 |
| 140       | E         | 80                  |
| 160       | E         | 65                  |
| 180       | E         | 40                  |
| 200       | E         | 35                  |
| 220       | E         | 35                  |
| 240       | E         | 35                  |
| 260       | E         | 65                  |
| 280       | E         | 65                  |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-5 for plot of survey data.

**Table A-1**  
**Gamma Survey Values**

Southwest Resources, Inc.  
Ambrosia Lake Sections 11 and 12

| <b>Dysart II (continued)</b> |                  |                                     |
|------------------------------|------------------|-------------------------------------|
| <b>Distance</b>              | <b>Direction</b> | <b>Value (<math>\mu</math>R/hr)</b> |
| 300                          | E                | 80                                  |
| 20                           | S                | 65                                  |
| 40                           | S                | 65                                  |
| 60                           | S                | 55                                  |
| 80                           | S                | 55                                  |
| 100                          | S                | 55                                  |
| 120                          | S                | 60                                  |
| 140                          | S                | 85                                  |
| 160                          | S                | 85                                  |
| 180                          | S                | 100                                 |
| 200                          | S                | 90                                  |
| 220                          | S                | 95                                  |
| 240                          | S                | 140                                 |
| 260                          | S                | 135                                 |
| 280                          | S                | 120                                 |
| 300                          | S                | 180                                 |
| 20                           | W                | 60                                  |
| 40                           | W                | 40                                  |
| 60                           | W                | 50                                  |
| 80                           | W                | 45                                  |
| 100                          | W                | 70                                  |
| 120                          | W                | 50                                  |
| 140                          | W                | 40                                  |
| 160                          | W                | 40                                  |
| 180                          | W                | 55                                  |
| 200                          | W                | 70                                  |
| 220                          | W                | 40                                  |
| 240                          | W                | 25                                  |
| 260                          | W                | 20                                  |
| 280                          | W                | 20                                  |
| 300                          | W                | 20                                  |
|                              |                  |                                     |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-5 for plot of survey data.

**Table A-1**  
**Gamma Survey Values**  
 Southwest Resrouces, Inc.  
 Ambrosia Lake Sections 11 and 12

| Section 11 Vent |           |                     |
|-----------------|-----------|---------------------|
| Distance        | Direction | Value ( $\mu$ R/hr) |
| Shaft           | -         | 110                 |
| 20              | N         | 150                 |
| 40              | N         | 120                 |
| 60              | N         | 85                  |
| 80              | N         | 90                  |
| 100             | N         | 60                  |
| 120             | N         | 55                  |
| 140             | N         | 45                  |
| 160             | N         | 60                  |
| 180             | N         | 60                  |
| 200             | N         | 100                 |
| 20              | W         | 170                 |
| 40              | W         | 150                 |
| 60              | W         | 130                 |
| 80              | W         | 125                 |
| 100             | W         | 130                 |
| 120             | W         | 160                 |
| 140             | W         | 165                 |
| 160             | W         | 150                 |
| 180             | W         | 170                 |
| 200             | W         | 250                 |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-6 for plot of survey data.

**Table A-1**  
**Gamma Survey Values**

Southwest Resrouces, Inc.  
Ambrosia Lake Sections 11 and 12

| <b>Section 11 Vent (continued)</b> |                  |                                     |
|------------------------------------|------------------|-------------------------------------|
| <b>Distance</b>                    | <b>Direction</b> | <b>Value (<math>\mu</math>R/hr)</b> |
| 20                                 | E                | 135                                 |
| 40                                 | E                | 100                                 |
| 60                                 | E                | 100                                 |
| 80                                 | E                | 100                                 |
| 100                                | E                | 90                                  |
| 120                                | E                | 85                                  |
| 140                                | E                | 80                                  |
| 160                                | E                | 75                                  |
| 180                                | E                | 65                                  |
| 200                                | E                | 60                                  |
| Spoils Pile                        | -                | 150                                 |
| 20                                 | S                | 155                                 |
| 40                                 | S                | 155                                 |
| 60                                 | S                | 140                                 |
| 80                                 | S                | 135                                 |
| 100                                | S                | 140                                 |
| 120                                | S                | 130                                 |
| 140                                | S                | 90                                  |
| 160                                | S                | 115                                 |
| 180                                | S                | 65                                  |
| 200                                | S                | 60                                  |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-6 for plot of survey data.

**Table A-1**  
**Gamma Survey Values**  
Southwest Resources, Inc.  
Ambrosia Lake Sections 11 and 12

| Workers' Quarters |           |                     |
|-------------------|-----------|---------------------|
| Distance          | Direction | Value ( $\mu$ R/hr) |
| -                 | -         | 10                  |
| -                 | -         | 10                  |
| -                 | -         | 10                  |
| -                 | -         | 10                  |
| -                 | -         | 10                  |
| -                 | -         | 10                  |
| -                 | -         | 10                  |
| -                 | -         | 10                  |

**Notes:**

1. Survey by INTERA Inc. on February 12, 2013 using Ludlum Model 19 instrument.
2. See Figure A-7 for plot of survey data.