



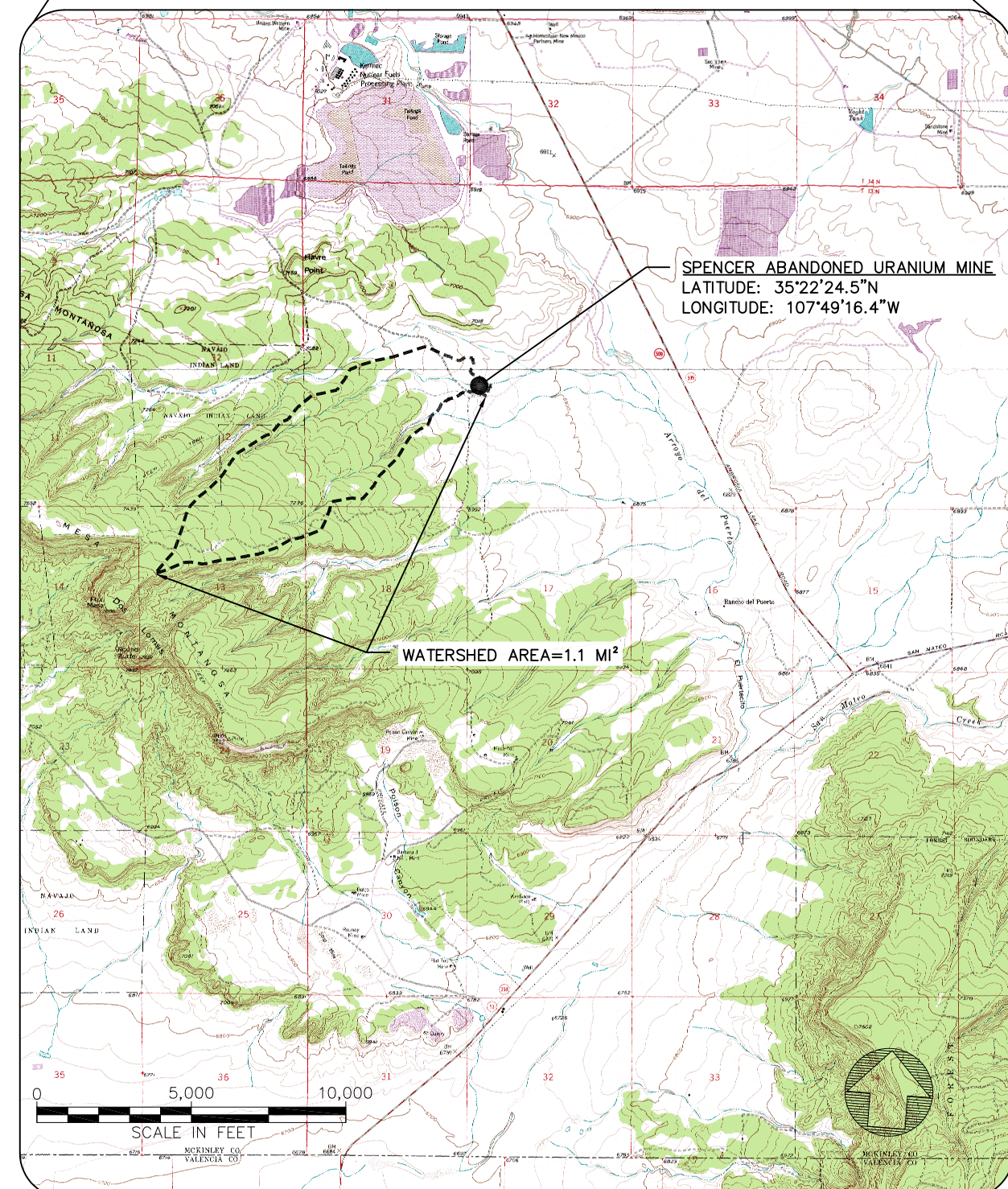
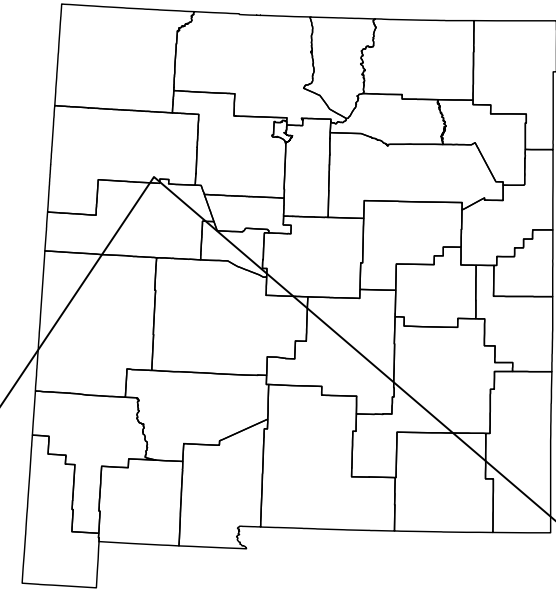
GRANTS URANIUM - SPENCER MINE SAFEGUARD AND RECLAMATION PROJECT

AMBROSIA LAKE, MCKINLEY COUNTY, NM

STATE OF NEW MEXICO EMNRD-MMD-2014-07



GOOGLE EARTH AERIAL PHOTO



VICINITY MAP
NEW MEXICO MERIDIAN, TOWNSHIP 13N,
RANGE 9W, SECTION 8
MCKINLEY COUNTY, NEW MEXICO

PROJECT DESCRIPTION:

THE NEW MEXICO ABANDONED MINE LAND (AML) PROGRAM, WORKING IN PARTNERSHIP WITH THE BUREAU OF LAND MANAGEMENT (BLM) FARMINGTON FIELD OFFICE (FFO), IS HOPING TO MITIGATE THE EFFECTS OF LEGACY URANIUM MINING ON WATER RESOURCES CAUSED BY FAILING INFRASTRUCTURE AT THE SPENCER ABANDONED MINE. OF PARTICULAR CONCERN IS THE ABANDONED OPEN MINE SHAFT AT THE SITE, WHICH IS CURRENTLY COLLECTING SUBSTANTIAL AMOUNTS OF STORMWATER RUNOFF FROM THE SURROUNDING WATERSHEDS. IN ADDITION TO IMPACTING GROUNDWATER QUALITY, THIS CONCENTRATED RUNOFF HAS CAUSED SEVERE EROSION NEAR THE SHAFT, CULMINATING IN THE FORMATION OF A 700-FOOT LONG GULLY THAT IS RAPIDLY ADVANCING HEADWARD THROUGH THE VALLEY FLOOR.

FIGURES 1-2 OF THIS PLAN SET WERE DEVELOPED BY THE NEW MEXICO ABANDONED MINE LAND (AML) PROGRAM TO ADDRESS SAFETY AND CLOSURE PLANS FOR THE DERELICT MINE SHAFT AND ASSOCIATED VENTS.

SHEETS 1-4 OF THIS PLAN SET WERE DEVELOPED BY OXBOW ECOLOGICAL ENGINEERING, LLC TO ADDRESS RECLAMATION PRACTICES TO STABILIZE, RESTORE, AND IMPROVE SITE IMPAIRMENTS ONCE MINE SHAFT CLOSURE OPERATIONS ARE COMPLETE. CONSTRUCTION ELEMENTS INCLUDE:

- REMOVING DETERIORATED MINING INFRASTRUCTURE, MINING SPOIL PILES, AND OTHER SITE "CLUTTER" TO IMPROVE SITE SAFETY, AESTHETICS, AND NATURAL FUNCTION;
- STABILIZING ACTIVE HEADCUTS/GULLY EROSION AND PREVENTING FURTHER LAND DEGRADATION;
- RE-CONTOURING LAND TO RESTORE NATURAL SITE MORPHOLOGY AND ENCOURAGING DISPERSED FLOW AND STORMWATER INFILTRATION;
- REMOVING A NETWORK OF HISTORIC AND ACTIVE ROADS THAT CRISS-CROSS THE SITE, AS PART OF RE-CONTOURING OPERATIONS, TO PREVENT CHANNELIZED/CONCENTRATED RUNOFF;
- PLANTING DISTURBED AREAS WITH NATIVE SEED TO IMPROVE EROSION RESISTANCE AND HABITAT.

INDEX:

SHEET NO.	DRAWING NO.	PREPARED BY	DESCRIPTION
1	CVR01	OEE	COVER SHEET
2	GEN01	OEE	PROJECT AREA OVERVIEW, ACCESS, & CONTROL POINTS
3	IMP01	OEE	GRADING & IMPROVEMENT PLAN
4	DTL01	OEE	DETAIL SHEET

FIGURE NO.	DRAWING NO.	PREPARED BY	DESCRIPTION
1	FIGURE 1	AML	TYPICAL PLUG CLOSURE MINE AND VENT SHAFT
2	FIGURE 2	AML	TYPICAL PLUG CLOSURE CONDUIT PIPE
3	FIGURE 3	AML	MAIN SHAFT CLOSURE

CAUTION:

THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPS, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

SUBMITTED TO:

CLIENT/PROJECT MANAGER:
NEW MEXICO ABANDONED MINE LAND (AML) PROGRAM
MINING & MINERALS DIVISION
ENERGY, MINERALS, AND NATURAL RESOURCES DEPT.
1220 S. SAINT FRANCIS DRIVE
SANTA FE, NM 87505
(505) 476-3423

PROJECT PARTNER:
BUREAU OF LAND MANAGEMENT (BLM)
FARMINGTON DISTRICT
FARMINGTON FIELD OFFICE
6251 N. COLLEGE BLVD., STE. A
FARMINGTON, NM 87402
(505) 564-7600

STORMWATER MANAGEMENT & EROSION CONTROL PLANS (SHEETS 1-4):

PREPARED AS PART OF TASK ORDER #1 FOR THE GEOMORPHOLOGICAL ASSESSMENT AND DESIGN OF STREAM RESTORATION MEASURES AT ABANDONED MINE SITES (AML CONTRACT #14-521-0620-0134)

DESIGN ENGINEER:
OXBOW ECOLOGICAL ENGINEERING, LLC
3080 S. WALKUP DRIVE
FLAGSTAFF, AZ 86005
(928) 266-6192

TECHNICAL ADVISOR:
WATERSHED ARTISANS, INC.
1000 CORDOVA PLACE #832
SANTA FE, NM, 87505
(505) 577-9625

MINE SHAFT/VENT SAFETY & CLOSURE PLANS (FIGURES 1-2):

DESIGN ENGINEER:
NEW MEXICO ABANDONED MINE LAND (AML) PROGRAM
MINING & MINERALS DIVISION
ENERGY, MINERALS, AND NATURAL RESOURCES DEPT.
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ABBREVIATIONS:

- ® AT
- AB AGGREGATE BASE
- AC ACRE
- ACP ASPHALT CONCRETE PAVEMENT
- APPROX APPROXIMATELY
- CO CENTER TO CENTER
- CFS CUBIC FEET PER SECOND
- CLM CENTER LINE
- CLSM CONTROLLED LOW STRENGTH MATERIAL
- CMP CORRUGATED METAL PIPE
- CONC CONCRETE
- CP CONTROL POINT
- CY CUBIC YARD
- Ø DIAMETER
- DIPS DUCTILE IRON PIPE SIZE
- DR DIMENSION RATIO
- DTL DETAIL
- DWG DRAWING
- EA EACH
- ELEV ELEVATION
- EX EXISTING
- FG FINISHED GRADE ELEVATION
- FL FLOWLINE ELEVATION
- FPT FEMALE PIPE THREAD
- FT FEET
- FTG FITTING
- GA GAUGE
- GALV GALVANIZED
- GB GRADE BREAK
- GPM GALLONS PER MINUTE
- H HEIGHT
- HCFL HISTORIC CHANNEL FLOWLINE
- HDPE HIGH DENSITY POLYETHYLENE
- IE INVERT ELEVATION
- IN INCH
- IPS IRON PIPE SIZE
- L LENGTH
- LB POUNDS
- LF LINEAR FEET
- LS LUMP SUM
- MAX MAXIMUM
- M.E. MATCH EXISTING
- MIN MINIMUM
- MISC MISCELLANEOUS
- MPT MALE PIPE THREAD
- NO. NUMBER
- NTS NOT TO SCALE
- OC ON CENTER
- OEE OXBOW ECOLOGICAL ENGINEERING, LLC
- OC PRIMARY CHANNEL FLOWLINE
- PCFL PRIMARY CHANNEL FLOWLINE
- PE LOW DENSITY POLYETHYLENE
- PROP. PROPOSED
- PSI POUNDS PER SQUARE INCH
- PVC POLYVINYL CHLORIDE
- R RADIUS
- REQD REQUIRED
- SCH SECONDARY CHANNEL FLOWLINE
- SCH SCHEDULE
- SF SQUARE FEET
- SHT SHEET
- SS STAINLESS STEEL
- STA STATION
- STD STANDARD
- SY SQUARE YARD
- SYMM SYMMETRICAL
- TOR TOP OF ROAD
- TN TONS
- TYP TYPICAL
- VLV VALVE
- W WIDTH
- W/ WITH
- WCS WATER CONTROL STRUCTURE
- WSE WATER SURFACE ELEVATION

811 Know what's below. Call before you dig.

UNAUTHORIZED CHANGES & USES ARE PROHIBITED. ANY CHANGES TO THIS DRAWING MUST BE APPROVED BY THE ORIGINAL DESIGNER. ANY CHANGES TO THE ORIGINAL DESIGN MUST BE APPROVED BY THE ORIGINAL DESIGNER.

DATE: 04-13-2015
DRAWING NUMBER: CVR01
SHEET NUMBER: 1 OF 4
GEE PROJECT NUMBER: NM-001-02

NO.	DATE	BY	REVISION
1	4/13/15	GFC	100% DESIGN SUBMITTAL
2	4/20/15	GFC	FIG. 3 ADDED TO DRAWING SET BY AML

DRAWN BY: G. CATHEY
DESIGNED BY: NA
REVIEWED BY: NA

COVER SHEET

GRANTS URANIUM - SPENCER MINE SAFEGUARD AND RECLAMATION PROJECT
AMBROSIA LAKE, MCKINLEY COUNTY, NM
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oxbow
ecological engineering, llc

Integrating engineering and ecological principles to restore, enhance, and conserve natural systems.

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