



TA 36

**DEPARTMENT OF ENERGY**  
National Nuclear Security Administration  
Los Alamos Site Office  
Los Alamos, New Mexico 87544



DEC 08 2005

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. James P. Bearzi, Chief  
NMED-Hazardous Waste Bureau  
2905 Rodeo Park Drive East,  
Building 1  
Santa Fe, NM 87505-6303



Dear Mr. Bearzi:

Subject: Final Fact Sheet for Intermediate Well R-23i

Enclosed are two copies of the Fact Sheet for Intermediate Well R-23i, which was recently completed by Kleinfelder and Associates for the Department of Energy. If you have any questions regarding this report, please contact me at (505)606-0397, or Tom Whitacre at (505)665-5042.

Sincerely,

John C. Ordaz, P.E.  
Assistant Manager  
Office of Environmental Stewardship

ES: 2TW-017

Enclosures

cc w/enclosures:

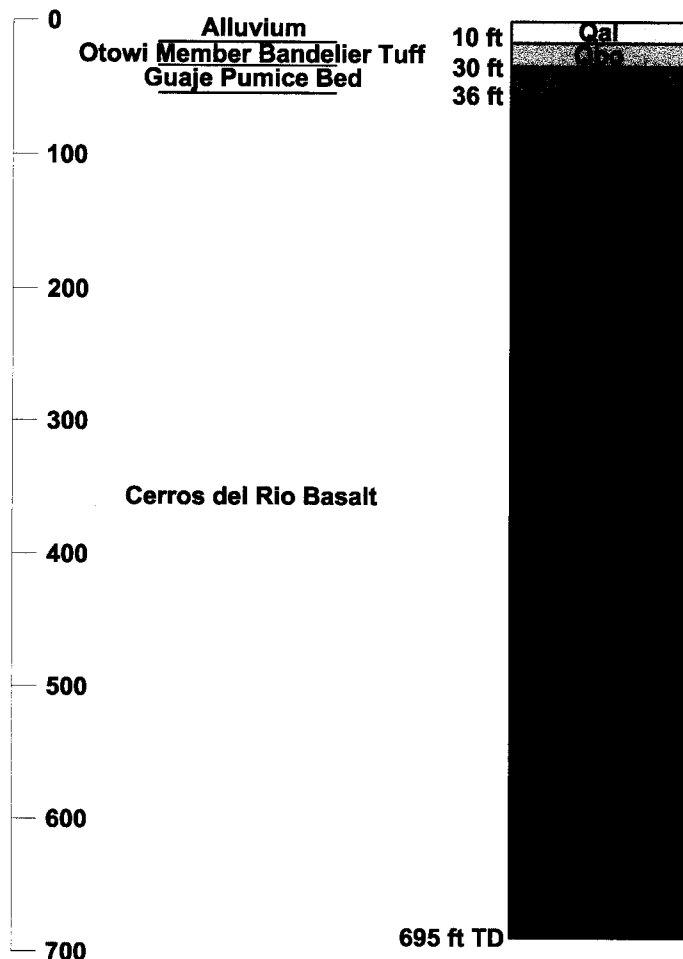
John Young  
NMED-Hazardous Waste Bureau  
2905 Rodeo Park Drive East,  
Building 1  
Santa Fe, NM 87505-6303

Tom Whitacre, ES, LASO  
Mat Johansen, ES, LASO  
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Jean Dewart, ENV-GP, LANL, MS-M992  
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Mark Everett, ENV-GP, LANL, MS-M992  
Steve Pearson, ENV-WQH, LANL, MS-M992  
File



2378

DEPTH (ft bgs)



**DRILLING INFORMATION**

**PERSONNEL**

WDC Exploration & Wells  
J. Aguilar, Q. Stevens, D. Mathews, K. Jones  
DRILL RIG Speedstar 50k

**DRILLING METHOD**

- HOLLOW-STEM AUGER
- AIR ROTARY
- MUD/WATER ROTARY
- casing placed in boring

**DRILLING FLUID TYPE**

- BENTONITE
  - WATER
  - POLYMER
  - AIR
- QUIK-FOAM®, EZ-MUD®

**DRILLING START / FINISH**

DATE 10/11/05 TIME 17:28  
DATE 10/22/05 TIME 12:20

**Note:**

Geologic contacts are based on schematic prepared by D. Broxton. Boring was not lithologically logged due to proximity of R-23.

Depth to water



**BOREHOLE SUMMARY DATA SHEET**  
Characterization Well R-23i  
Pajarito Canyon  
Los Alamos, New Mexico

FIGURE

**1**

Drawn By: C. Landon	Date: November 2005
Project No.: 49436	Filename: 49436_01_0.dwg
Scale: not-to-scale	Revision: -

C:\Users\jag33 - DOE\My Documents\Projects\49436\_01\_0.dwg

**GROUT FORMULA**

WATER 9.1% AGGREGATE 77.2%  
CEMENT 13.4% BENTONITE 0.3%

DIAMETER OF BOREHOLE  
13.4" FROM 0 FT TO 40 FT BGS  
12.3" FROM 40 FT TO 695 FT BGS

**WELL DEVELOPMENT INFORMATION**  
(ONGOING AS OF 12/07/05)

**DEVELOPMENT METHOD**

SWABBING  BAILING

PUMPING

TOTAL PURGE VOLUME 28,007.5 GALLONS  
(composite from upper and lower screens)

**PARAMETER MEASUREMENTS (12/05/05 lower screen)**

pH 8.22  
TEMPERATURE 17.7 °C  
SPECIFIC CONDUCTANCE 227.0 μS  
TURBIDITY >99.9 NTU

**PARAMETER MEASUREMENTS (11/16/05)**  
(composite from upper and lower screen)

pH 8.30  
TEMPERATURE 16.9 °C  
SPECIFIC CONDUCTANCE 157.7 μS  
TURBIDITY >99.9 NTU

**WELL COMPLETION BEGAN**

DATE 11/03/05 TIME 09:50

**WELL COMPLETION FINISHED**

DATE 11/10/05 TIME 15:35

**WELL DEVELOPMENT BEGAN**

DATE 11/13/05 TIME 12:10

**WELL DEVELOPMENT FINISHED**

DATE TIME

**PIEZOMETER DEVELOPMENT INFORMATION**  
(ONGOING)

**SURFACE COMPLETION INFORMATION**

TYPE OF PROTECTIVE CASING

STEEL SIZE

PROTECTIVE POSTS CALLED

**SURFACE SEAL AND PAD COMPLETION**

CHECKED FOR SETTLEMENT

MATERIAL USED

REINFORCED

YES:

NO

PAD DIMENSIONS

\_\_\_ FT (L) x \_\_\_ FT (W) x \_\_\_ FT (H)

**TYPE OF CASING**

STAINLESS STEEL

INSIDE DIAMETER 4.5 in.

OUTSIDE DIAMETER 5.0 in.

JOINT TYPE AP/L/T

**TYPE OF SCREEN**

STAINLESS STEEL

INSIDE DIAMETER 4.5 in.

OUTSIDE DIAMETER 5.2 in.

JOINT TYPE AP/L/T

SLOT SIZE 0.020 in. rod-based wire wrapped

**TYPE OF CASING (PIEZOMETER)**

STAINLESS STEEL

INSIDE DIAMETER 2.08 in.

OUTSIDE DIAMETER 2.4 in.

JOINT TYPE EJT

**TYPE OF SCREEN (PIEZOMETER)**

STAINLESS STEEL

INSIDE DIAMETER 2.08 in.

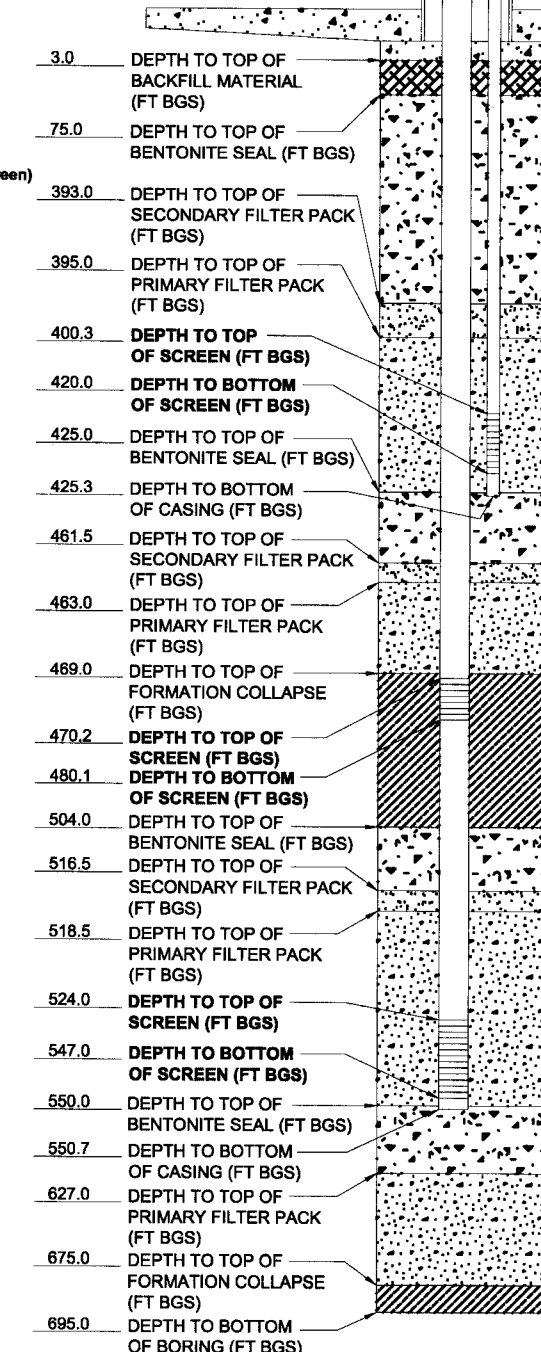
OUTSIDE DIAMETER 2.4 in.

JOINT TYPE EJT

SLOT SIZE 0.020 in. rod-based wire wrapped

TOTAL LENGTH OF CASING AND SCREEN 558.5 (WELL) FT  
432.0 (PIEZOMETER)

DEPTH TO WATER FOLLOWING INSTALLATION (TOC) 450.4 (WELL) FT BGS  
405.7 (PIEZOMETER)  
Date: 11/09/05



LOCKING COVER  
WELL CAP  
ELEVATION OF PROTECTIVE CASING  
ELEVATION OF TOP OF WELL CASING (FT AMSL)  
TOP OF PIEZOMETER ELEVATION (FT AMSL)  
MONUMENT MARKER ELEVATION (FT AMSL)

**BACKFILL MATERIAL (3.0-75.0 FT BGS)**

MATERIAL: Grout  Poured  
ACTUAL VOLUME 80.0 ft<sup>3</sup>  
CALCULATED VOLUME 47.0 ft<sup>3</sup>

**BENTONITE SEAL (75.0-393.0 FT BGS)**  
MATERIAL: Bentonite Chips  Tremie  
ACTUAL VOLUME 247.9 ft<sup>3</sup>  
CALCULATED VOLUME 207.7 ft<sup>3</sup>

**SECONDARY FILTER PACK (393.0-395.0 FT BGS)**  
MATERIAL: 20/40 Silica Sand  Tremie  
ACTUAL VOLUME 2.0 ft<sup>3</sup>  
CALCULATED VOLUME 1.3 ft<sup>3</sup>

**PRIMARY FILTER PACK (395.0-425.0 FT BGS)**  
MATERIAL: 10/20 Silica Sand  Tremie  
ACTUAL VOLUME 20.5 ft<sup>3</sup>  
CALCULATED VOLUME 19.6 ft<sup>3</sup>

**BENTONITE SEAL (425.0-461.5 BGS)**  
MATERIAL: Bentonite Chips/Bentonite Pellets  Poured  
ACTUAL VOLUME 22.0 ft<sup>3</sup>  
CALCULATED VOLUME 25.8 ft<sup>3</sup>

**SECONDARY FILTER PACK (461.5-463.0 FT BGS)**  
MATERIAL: 20/40 Silica Sand  Poured  
ACTUAL VOLUME 2.0 ft<sup>3</sup>  
CALCULATED VOLUME 0.7 ft<sup>3</sup>

**PRIMARY FILTER PACK (463.0-469.0 FT BGS)**  
MATERIAL: 10/20 Silica Sand  Poured  
ACTUAL VOLUME 34.0 ft<sup>3</sup>  
CALCULATED VOLUME 2.2 ft<sup>3</sup>

**FORMATION COLLAPSE (469.0-504.0 BGS)**  
MATERIAL: Slough  
ESTIMATED VOLUME 12.9 ft<sup>3</sup>

**BENTONITE SEAL (504.0-516.5 FT BGS)**  
MATERIAL: Bentonite Pellets  Poured  
ACTUAL VOLUME 8.7 ft<sup>3</sup>  
CALCULATED VOLUME 10.9 ft<sup>3</sup>

**SECONDARY FILTER PACK (516.5-518.5 FT BGS)**  
MATERIAL: 20/40 Silica Sand  Poured  
ACTUAL VOLUME 2.0 ft<sup>3</sup>  
CALCULATED VOLUME 1.0 ft<sup>3</sup>

**PRIMARY FILTER PACK (518.5-550.0 FT BGS)**  
MATERIAL: 10/20 Silica Sand  Poured  
ACTUAL VOLUME 50.0 ft<sup>3</sup>  
CALCULATED VOLUME 8.3 ft<sup>3</sup>

**BENTONITE SEAL (550.0-627.0 FT BGS)**  
MATERIAL: Bentonite Pellets  Poured  
ACTUAL VOLUME 47.0 ft<sup>3</sup>  
CALCULATED VOLUME 33.8 ft<sup>3</sup>

**PRIMARY FILTER PACK (627.0-675.0 FT BGS)**  
MATERIAL: 10/20 Silica Sand  Tremie  
ACTUAL VOLUME 28.5 ft<sup>3</sup>  
CALCULATED VOLUME 24.0 ft<sup>3</sup>

**FORMATION COLLAPSE (675.0-695.0 FT BGS)**  
MATERIAL: Slough  
ESTIMATED VOLUME 16.4 ft<sup>3</sup>



**WELL SUMMARY DATA SHEET**  
Characterization Well R-231  
Pajarito Canyon  
Los Alamos, New Mexico

FIGURE  
**2**

Drawn By: C. Bhongir	Date: November 2005
Project No.: 49436	Filename: 49436_02_0.dwg
Scale: not-to-scale	Revision: -