phelps dodge Tyrone Inc. P. O. Drawer 571, Tyrone, New Mexico 88065 • (505) 538-5331

August 2, 2007

Certified Mail # 7002 3150 0005 6579 5108
Return Receipt Requested

Mr. Clint Marshall
Groundwater Quality Bureau
New Mexico Environment Department
1190 St. Francis Dr. P.O. Box 26110
Santa Fe, New Mexico 87502

Certified Mail # 7002 3150 0005 6579 5115
Return Receipt Requested

Mr. David Ohori
Mining and Minerals Division
Mining Act Reclamation Program
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Dear Messrs Marshall and Ohori,

Re: Submittal of Completion Report - DP-1341 Condition 82
Tyrone Mine Facility - Supplemental Groundwater Study

Phelps Dodge Tyrone Inc. (PDTI) is pleased to submit the enclosed Completion Report (3 copies each) entitled ***Completion Report for DP-1341 Condition 82 Tyrone Mine Facility Supplemental Groundwater Study***. The report was prepared by Daniel B. Stephens & Associates, Inc. on behalf of PDTI. Also included is the electronic version of the report.

Should you have any questions or comments regarding this submittal, please contact Mr. Lee Nix at (505) 538 7177.

Very truly yours,

Lee A. Nix

for Thomas L. Shelley, Manager
Environment, Land and Water

TLS:ln
Attachments
20070802-102

Completion Report for
DP-1341 Condition 82
Tyrone Mine Facility
Supplemental Groundwater Study

Prepared for **Phelps Dodge Tyrone, Inc.**
Tyrone, New Mexico

August 2, 2007

Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 • Albuquerque, New Mexico 87109

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1. Introduction

On April 8, 2003, the New Mexico Environment Department (NMED) issued discharge permit (DP) 1341 to Phelps Dodge Tyrone, Inc. (PDTI). Section III of the permit requires PDTI to conduct scientific studies of the Tyrone Mine and mine closure actions as a condition of compliance with the permit. Condition 82 of DP-1341 is included below:

> Tyrone shall perform a study to supplement existing ground water studies and evaluate the hydrologic conditions beneath the Tyrone Mine Facility. In accordance with the schedule approved under Condition 74, Tyrone shall submit to NMED for approval a work plan, including an implementation schedule, for a study to evaluate the hydrologic conditions beneath the Tyrone Mine Facility. The study shall consider the data needs for the Pit Lake Formation study described in Condition 83. The study shall be designed to determine whether the proposed closure alternatives will achieve the requirements of the WQA and the WQCC regulations. As part of the study Tyrone may be required to install additional monitoring wells for the collection of temperature, flow direction, water quality and water level data beneath the Leach Ore Stockpiles and Waste Rock Piles.

Daniel B. Stephens & Associates, Inc. (DBS&A), on behalf of PDTI, developed the original Condition 82 work plan submitted on November 25, 2003. NMED comments on the work plan were received August 27, 2004, and responses to the comments, with an amended schedule, were submitted on November 23, 2004. PDTI conducted Condition 82 activities based on the original work plan and the responses to comments, where applicable. However, the quality assurance plan provided as Appendix B to the *Stage 1 Abatement Plan Proposal, Tyrone Mine Facility*, dated October 15, 2004 (DBS&A, 2004) served as the basis for field activities such as drilling operations, aquifer testing, and sampling methods, unless alternative procedures or practices were approved in consultation with NMED staff.

Activities associated with DP-1341 Condition 82 included monitor well installation, aquifer testing and analysis, comprehensive data review, re-assessment of previous conceptual models of groundwater flow and contaminant transport as appropriate, and reporting. A status report documenting the progress of Condition 82 activities was submitted on October 31, 2005 (DBS&A, 2005). This final report summarizes the Condition 82 investigation activities as well as

some related activities (primarily well installations and subsequent sampling and, in some cases, aquifer testing) conducted under DP-1341 Condition 34 (Abatement Plan) and several operational DPs (DP-27, DP-166, DP-435, DP-455, DP-383, and DP-670). Investigation activities performed as part of Condition 34 and the operational DPs have also provided data to supplement the existing groundwater studies and to assess hydrogeologic conditions at the Tyrone Mine. Because some field investigation activities required as part of the Stage 1 Abatement Plan Proposal (APP) are ongoing and a specific timeline is not yet in place, the results of all monitor well drilling completed to date under DP-1341 are provided in this report for convenience and completeness. Information collected as part of Condition 82 investigation and analysis activities has been used to assist with development of the updated Tyrone groundwater flow model (DP-1341 Condition 83) and the Tyrone Stage 1 APP and related documents.

Section 2 of this report describes the monitor well installations and presents the results of groundwater quality sampling. Section 3 provides results of the aquifer tests and a summary comparison of the results of the tests with those of previous tests documented in DBS&A (1997). Section 4 provides a status summary of the investigations performed to further evaluate perched zones in Oak Grove Wash and Deadman Canyon for Condition 82. Section 5 provides a summary of conceptual model evaluation based on newly collected data, and a summary of some Tyrone environmental database corrections and updates that should be implemented immediately. In addition, Plates 1 through 3 are provided to serve as updated maps of existing well locations at Tyrone.

2. Monitor Well Installation

Installation of additional monitor wells at the Tyrone Mine was proposed to acquire additional data to further characterize the hydrogeology, delineate groundwater quality, and identify groundwater flow paths. Data collected at the new or replacement well locations were used to update and refine the existing conceptual and numerical groundwater models for Tyrone. Final well locations were determined based on NMED input and consultation with PDTI personnel, including mine planners, so that the wells were placed in locations least likely to be disturbed by existing and future mine operations.

DBS&A installed a total of 29 monitor wells and 2 soil borings at the Tyrone Mine between April 2005 and July 2006. These monitor wells were constructed under DP-1341 Conditions 34 and 82, and as part of several of the operational DPs.

Table 1 lists the monitor wells that were installed. Monitor well designations consist of the number for the DP area in which the well was installed, followed by the year of installation and a sequential number starting at one. Figure 1 shows the locations of the monitor wells on a 2004 aerial photograph of the Tyrone Mine. Two of the monitor wells in Deadman Canyon (166-2006-01 and 166-2006-03) and one well in the Mine/Stockpile area (670-2005-02) are completed in perched groundwater zones; all other wells are believed to be completed in regional water (Table 1).

2.1 Drilling

Boreholes for the monitor wells were advanced using fluid-assisted air-rotary drilling. Steel surface casing was either driven or advanced using STRATEX®. The surface casing was placed to a depth of approximately 30 feet at most monitor well locations; this practice increased cutting returns and allowed for deeper drilling without the need to add fluid to obtain drill cuttings. Fluid was added once the return of drill cuttings became poor. Initially, the boreholes completed in 2005 were drilled with a 10-⅝-inch drill bit to facilitate the placing of surface casing. Once the surface casing was placed, drilling continued with a 9-⅞-inch drill bit. At the 5 monitor wells installed in Deadman Canyon in 2006, the boreholes were drilled with either a

9-⅞- or 10-inch drill bit. For the regional wells, after the surface casing was placed, drilling was continued with an 8-inch drill bit.

All equipment was decontaminated by the drilling contractor, Water Development Corporation (2005 wells) or Badger Western (2006 wells), prior to mobilization to the Tyrone Mine. Drilling equipment was also decontaminated between boreholes. Decontamination consisted of an initial high-pressure rinse, followed by a non-phosphate detergent wash and a final high-pressure rinse.

A DBS&A field geologist described drill cuttings collected at 10-foot intervals and at lithologic contacts. The descriptions include lithology, color, cutting or grain size, sorting, roundness, and mineralogy. Based on the descriptions, the DBS&A field geologist assigned a rock unit (e.g., Gila conglomerate) and/or United Soil Classification System (USCS) designation to the cutting sample. Appendix A contains well logs for each monitor well and soil boring.

In addition, the DBS&A field geologist measured paste pH and electrical conductivity (EC) of alluvial sediment and Gila conglomerate cuttings collected at 10-foot intervals. This was accomplished by mixing equal volumes of water and sediment/Gila conglomerate and subsequently measuring the pH and EC of the paste. This information is contained in the DBS&A field notebooks.

Appendix A also provides well logs for several replacement monitor wells installed by Golder Associates (Golder). Although these wells were constructed as part of reclamation activities rather than as part of DP-1341 Condition 82, the well logs are provided in this report for completeness and convenience. These well logs and other associated information will also be provided in a DP-396 well installation and abandonment report to be developed by Golder on behalf of PDTI.

2.2 Well Completion

At each monitor well location, a well was constructed in the open borehole immediately after drilling. The well casing and screen were run down the borehole and suspended from the

ground surface. A tremmie pipe was used to place the sand pack and lifts of neat cement grout. Each well was surged to settle the sand pack prior to emplacement of the first lift of bentonite chips, which were gravity fed and hydrated with emplacement. Where the bentonite chips had to settle through a significant thickness of water column, a mixture of 50 percent bentonite chips and 50 percent sand was used. Wells completed to depths less than 300 feet were constructed of schedule (SCH) 40 4-inch-diameter polyvinyl chloride (PVC). Wells completed to depths greater than 300 feet were constructed of SCH 80 5-inch-diameter PVC. Except for monitor wells 670-2005-01, 166-2006-01, and 166-2006-03, the wells were completed with 30 feet of 20-slot factory-cut PVC screen. Monitor well 670-2005-01 was constructed with 40 feet of screen, while Deadman Canyon perched zone wells 166-2006-01 and 166-2006-03 were constructed with 10 and 5 feet of screen, respectively. Where unconfined aquifer conditions exist, target placement of the screen was 5 feet of screen above the water table and 25 feet of screen below the water table. Where groundwater is confined, the screen was placed across the groundwater producing zone. Additional well specifications were as follows:

- 5-foot sump
- Centralizers above and below the screen
- 10/20 silica sand extending from approximately the bottom of the hole to 5 feet above the top of screen
- Annular seal placed above the filter pack in target lifts of 100 feet of hydrated bentonite chips followed by 10 to 20 feet of neat cement grout
- 4-foot by 4-foot by 0.5- to 2-foot-thick well pad
- 2- to 3-foot-tall stickup covered by a protective steel riser with a locking cap

Table 1 summarizes the existing monitor well completions.

2.3 Well Development

All monitor wells were developed by bailing and/or pumping until produced water was visibly clear of suspended solids and consistent field parameter measurements were achieved. Field

parameters consisted of EC, temperature, and pH. Measurements were considered consistent when a minimum of three consecutive values were within 10 percent of the previous measurement.

2.4 Survey

After the monitor wells were installed, PDTI personnel surveyed each well location and elevation. Table 1 provides the survey data. The horizontal locations are referenced to the Tyrone Mine coordinate system. Elevations are for the top of casing, and are referenced to mean sea level.

2.5 Water Quality Sampling

Except for wells used as pumping wells during aquifer tests (Section 3), initial water quality samples were collected from the installed monitor wells after dedicated pumps were installed in each of them. For the aquifer test wells, initial water quality samples were collected during the testing. All water samples were submitted to a certified laboratory (SVL Analytical in Kellogg, Idaho [SVL]). Table 2 lists field parameters (depth to water, EC, pH, and temperature) for the new wells and various notes regarding such items as pump installation and site access. Table 3 presents available analytical data. Note that some sample analyses listed in Table 3 exhibit sporadically high metal concentrations. These values are believed to be anomalous and are very likely attributable to sampling or laboratory error. Examples include wells 27-2005-02 (January 21, 2005 and January 6, 2006 samples) and well 363-2005-03 (April 11, 2007 sample). Quarterly sampling results for each of the newly installed monitor wells are collected and reported as part of the respective operational DP.

Figures 2 and 3 show the newly installed monitor wells that exceed New Mexico Water Quality Control Commission (NMWQCC) groundwater quality standards listed in Section 20.6.2 of the New Mexico Administrative Code. Additional discussion and analysis regarding groundwater quality, sources of impacts to groundwater, and groundwater flow paths are provided in Section 5.

3. Aquifer Tests

The purpose of aquifer testing was to determine the hydraulic properties at various locations throughout the mine site. Hydraulic data garnered from these tests supplement existing information and were considered during development of the updated Tyrone groundwater flow model (DP-1341 Condition 83). The DP-1341 Condition 82 work plan required that aquifer tests be conducted at the new regional monitor wells constructed as part of Condition 82, and several additional aquifer tests were also performed. Table 4 identifies the aquifer tests. Figure 4 shows the locations of the monitor wells that were used in the tests.

A total of 9 aquifer tests were performed between October 25 and November 19, 2005. The tests were performed at wells installed in 2005 completed in Gila conglomerate, Tertiary quartz monzonite, or Precambrian Burro Mountain granite. Most of the aquifer test locations are within or near the East Side area of the mine, and two locations are in the Mangas Valley on the upgradient side of tailing impoundments (Figure 4). The aquifer tests facilitated the determination of hydraulic conductivity (K) and storage (S) values in the area of the tested wells. In addition, some of the aquifer tests attempted to explore hydraulic communication across faults. This was accomplished by measuring and recording water levels at wells completed on opposite sides of a fault during an aquifer test.

The aquifer tests included both single-well and multi-well tests. The single-well tests had a pumping duration of approximately 4 hours, while the duration of the multi-well tests ranged from 8 to 72 hours. Once pumping stopped, water level recovery was monitored until the water level in the pumping well returned to at least 90 percent of the maximum drawdown value. The only exception was test 363-2005-04, where the water level only recovered to 74 percent of the maximum drawdown value after 17.5 hours of recovery.

Water levels were monitored during the aquifer tests using both depth to water probes (manual) and pressure transducers (automated). The pump was placed at or near the bottom of the screen, and groundwater was pumped at a constant rate determined to be suitable in the field. Pumping rates were chosen to produce a sufficient amount of drawdown without the water level falling below the level of the pressure transducer during the planned pumping period. The

pressure transducer was placed just above the top of the pump. A flow meter was used to monitor the pumping rate, and adjustments were made at a flow valve to maintain a constant pumping rate. Extracted groundwater was discharged to land surface at least 50 feet from pumping and observation wells.

DBS&A analyzed aquifer test data using AQTESOLV for Windows (version 4.01 professional). AQTESOLV is distributed by HydroSOLVE, Inc. and contains a comprehensive suite of standard published analytical solutions for determining aquifer properties from pumping and slug tests. Recovery data from the aquifer tests were analyzed using a Cooper-Jacob straight line approach (Driscoll, 1989). Table 5 summarizes the aquifer test results. The complete analyses are provided in Appendix B, along with a compact disc that contains the electronic aquifer test data.

For the multi-well tests, water samples were collected from the pumping well near the start and at the end of the pumping period. For the single-well tests, water samples were collected at some point during the test once field parameters had stabilized. The water samples were submitted to a certified laboratory for analysis. Analytical results for the recently installed wells are summarized in Table 3. The complete analytical laboratory reports for water quality samples collected during the aquifer tests are provided in Appendix C.

The following subsections provide discussion and results of each aquifer test. The subsections are organized by aquifer tests conducted as part of DP-1341 Condition 82, and those conducted to assist with various other DP-1341 activities. Each test is designated by the identification of the pumping well.

3.1 Condition 82 Aquifer Tests

Three aquifer tests were completed as part of the DP-1341 Condition 82 work plan. These tests were performed at wells 286-2005-03, 363-2005-01, and 383-2005-02 and are described in Sections 3.1.1 through 3.1.3. Aquifer tests required as part of the DP-1341 Condition 82 work plan were not completed for wells 166-2006-02 and 670-2005-01 due to low well yields.

3.1.1 Test 286-2005-03

A single-well test was performed at well 286-2005-03, located near the Tyrone Mine main gate (Figure 4) and screened in Gila conglomerate. DBS&A conducted the test on October 27, 2005. The well was pumped at a rate of 8.5 gallons per minute (gpm) for the first 43 minutes of the test, after which the pumping rate was increased to 12.9 gpm for the remainder of the pumping period in order to obtain a more significant drawdown response. The total pumping duration was 4.3 hours. Total drawdown at the end of the pumping period was 3.4 feet. The water level recovered to within 0.06 foot of the original static water level by the end of the recovery period, which was 1.4 hours.

The drawdown and recovery data were analyzed by fitting a Theis solution to the data. A Cooper-Jacob straight line approach was used to analyze the recovery data. Both analyses yielded similar transmissivity values of 651 and 684 square feet per day (ft^2/d) (Table 5). Average hydraulic conductivity was 23 feet per day (ft/d) based on the transmissivity values and an aquifer thickness of 29.4 feet. This thickness represents the saturated portion of the well screen before pumping. A storativity of 0.014 was determined from the Theis analysis.

Groundwater at well 286-2005-03 met NMWQCC groundwater standards (Table 3). Concentrations of sulfate and total dissolved solids (TDS) detected in the water quality sample collected during the aquifer test were 48.3 and 311 milligrams per liter (mg/L), respectively. The pH was 6.96.

3.1.2 Test 363-2005-01

A single-well test was performed at well 363-2005-01. This well is located east of the No. 1A leach stockpile on the downthrown (east) side of the Sprouse-Copeland Fault and is screened in Tertiary quartz monzonite (Figure 4). DBS&A performed the test on November 17, 2005. The well was pumped at a rate of 11.3 gpm for 4 hours and then allowed to recover. Total drawdown at the end of the pumping period was approximately 8.3 feet. The water level recovered to within 0.26 foot of the original static water level by the end of the recovery period, which was 1.2 hours.

The drawdown and recovery data were analyzed by fitting a Theis solution to the data. A Cooper-Jacob straight line approach was used to analyze the recovery data. The Cooper-Jacob analysis yielded a transmissivity value of 199 ft^2/d (Table 5). The Theis analysis produced a higher transmissivity value of 392 ft^2/d. Average hydraulic conductivity calculated from the two transmissivity values and a thickness of 29.4 feet was 10 ft/d. The 29.4-foot thickness represents the saturated portion of the well screen before pumping.

The storativity was 7.1×10^{-6} as determined from the Theis analysis. However, this value appears low and is likely a poor estimate due to the poor fit of the Theis solution to early drawdown data (Appendix B).

Groundwater at well 363-2005-01 met NMWQCC groundwater standards (Table 3). Sulfate and TDS concentrations of the water quality sample collected during the aquifer test were 14 and 204 mg/L, respectively. The pH was 6.59.

Water levels were to be periodically measured at well MB-27 during the 363-2005-01 test to explore the groundwater response across the Sprouse-Copeland Fault; however, an existing wire/cable in the well prevented water levels from being recorded. Due to the short duration of the test planned for well 363-2005-01, and the distance from well 363-2005-01 to well MB-27, the decision was made not to pull the existing sampling apparatus from well MB-27.

3.1.3 Test 383-2005-02

A single-well test was performed at well 383-2005-02, east of the No. 1B leach stockpile and south of the No. 5A waste stockpile (Figure 4). This well was installed to replace MB-10, which had been considered a regional monitor well but is now believed to have tapped a shallow groundwater zone that no longer exists or exists only intermittently. Well 383-2005-02 was completed as a regional monitor well and to a much greater depth than MB-10 (well 383-2005-02 is 460 feet deep, while well MB-10 is 65 feet deep). Well 383-2005-02 is screened in Tertiary quartz monzonite, and well MB-10 is screened in alluvium or Gila conglomerate.

DBS&A conducted the test on November 7, 2005. The well was pumped at a rate of 14.9 gpm for 4.1 hours and then allowed to recover. Total drawdown at the end of the pumping period was 6.6 feet. The water level recovered to 90 percent of the maximum drawdown value in approximately 25 minutes.

The drawdown and recovery data were analyzed by fitting a Theis solution to the data. A Cooper-Jacob straight line approach was used to analyze the recovery data. The Cooper-Jacob analysis yielded a transmissivity of 175 to 605 ft^2/d, depending on the portion of the recovery curve selected for analysis. The Theis analysis yielded a transmissivity value of 336 ft^2/d (Table 5). Average hydraulic conductivity calculated from the three transmissivity values and a thickness of 29.4 feet was 12.6 ft/d. The 29.4-foot thickness represents the saturated portion of the well screen before pumping. The storativity value determined from the Theis analysis was 0.035.

Groundwater at well 383-2005-02 met NMWQCC groundwater standards (Table 3). Sulfate and TDS concentrations of the water quality sample collected during the aquifer test were 9.47 and 212 mg/L, respectively. The pH was 6.73.

3.2 Additional Aquifer Tests

The following aquifer tests were completed to assist with various aspects of hydrogeological analyses, updates, and modeling related to DP-1341 activities. These tests were performed at wells 27-2005-03, 27-2005-04, 363-2005-02, 363-2005-03, 363-2005-04, and 455-2005-01, and are described in Sections 3.2.1 through 3.2.6, respectively.

3.2.1 Test 27-2005-03

Well 27-2005-03 is located in the Mangas Valley hydraulically upgradient of the No. 2 tailing impoundment, in an area where monitor wells had not been installed before (Figure 4). Well 27-2005-03 is screened in Precambrian Burro Mountain granite, and is on the upthrown (northeast) side of the Mangas Fault.

DBS&A conducted the test on November 19, 2005. The well was pumped at a rate of 4.4 gpm for 4 hours and then allowed to recover. Total drawdown at the end of the pumping period was 21.1 feet. The water level recovered to within 1.3 feet of the original static water level by the end of the recovery period, which was approximately 3 hours.

The drawdown and recovery data were analyzed by fitting a Theis solution to the data. A Cooper-Jacob straight line approach was used to analyze the recovery data. The Cooper-Jacob and Theis analyses yielded transmissivity values of 11 and 23 ft^2/d, respectively (Table 4). Average hydraulic conductivity calculated from the two transmissivity values and a thickness of 25.3 feet was 0.7 ft/d. The 25.3-foot thickness represents the saturated portion of the well screen before pumping. The storativity value of 0.080 was determined from the Theis analysis.

A water quality sample collected from well 27-2005-03 during the aquifer test contained sulfate and TDS at concentrations below NMWQCC groundwater standards (11.3 and 152 mg/L, respectively) (Table 3). The pH was 6.37. The concentrations of fluoride (1.88 mg/L) and manganese (0.213 mg/L) in the well exceeded NMWQCC standards. Ambient groundwater concentrations for these two constituents appear to be high in the vicinity of well 27-2005-03.

3.2.2 Test 27-2005-04

Well 27-2005-04 is located in the Mangas Valley hydraulically upgradient of the No. 3X tailing impoundment (Figure 4). Like well 27-2005-03, well 27-2005-04 was placed in an area where monitor wells had not been installed before. Well 27-2005-04 is screened in Gila conglomerate, and (unlike well 27-2005-03) is on the downthrown (west) side of the Mangas Fault.

DBS&A conducted the test on November 18, 2005. The well was pumped at a rate of 18.3 gpm for 4 hours and then allowed to recover. Total drawdown at the end of the pumping period was 23.0 feet. The water level recovered to 90 percent of the maximum drawdown value in approximately 2 hours.

The drawdown and recovery data were analyzed by fitting a Theis solution to the data. A Cooper-Jacob straight line approach was used to analyze the recovery data. The Cooper-Jacob analysis yielded transmissivity values of 29 and 172 ft^2/d, depending on the portion of the recovery curve selected (Table 5 and Appendix B). The Theis analysis produced an intermediate transmissivity value of 123 ft^2/d. Average hydraulic conductivity calculated from the three transmissivity values and a thickness of 29.4 feet was 3.7 ft/d. The 29.4-foot thickness represents the saturated portion of the well screen before pumping. A storativity value of 0.013 was determined from the Theis analysis.

Groundwater at well 27-2005-04 met NMWQCC groundwater standards (Table 3). Sulfate and TDS concentrations of the water quality sample collected during the aquifer test were 6.27 and 301 mg/L, respectively. The pH was 7.19.

3.2.3 Test 363-2005-02

One of the goals of this multi-well test was to explore hydraulic connections in the vicinity of the Mangas Fault and existing well MB-42. The test was performed at wells located near Oak Grove Wash below the confluence of Brick Kiln Gulch and Upper Oak Grove Wash (Figure 4). Well 363-2005-02 served as the pumping well and MB-42 was used as an observation well. Well 363-2005-02 is located on the southeast (downthrown) side of the projected location of the Mangas Fault, although the screened interval of this well may sample water on the upthrown side of that fault due to the angle of fault dip, which is unknown. If well 363-2005-02 was drilled through the fault zone, the fault zone could not be identified based on the geologic descriptions. Wells 363-2005-02 and MB-42 are both screened in Gila conglomerate at similar elevations.

DBS&A conducted the aquifer test on October 28, 2005. Well 363-2005-02 was pumped at a rate of 15.6 gpm for 9.1 hours and then allowed to recover. Total drawdown at the end of the pumping period was 16.2 feet. The water level recovered to the static water level in approximately 20 minutes.

Well 363-2005-02 drawdown and recovery data were analyzed by fitting both Theis and Neuman solutions to the data. The Neuman solution was selected in addition to the Theis

solution because the drawdown data showed a delayed yield response characteristic of an unconfined aquifer. A delayed yield response is caused by gravity drainage as the water table drops during the aquifer test, and is manifested by a flattening of a drawdown curve during intermediate time on a log-log plot of drawdown versus time (Appendix B). In addition to providing estimates of storativity, the Neuman solution can also be used to estimate specific yield, a storage term for unconfined aquifers. A Cooper-Jacob straight line approach was used to analyze the recovery data.

Both the Theis and Neuman analyses yielded similar transmissivity values of 169 and 180 ft^2/d, respectively (Table 5). The storativity value determined from the Theis analysis was 0.022. The specific yield estimated from the Neuman analysis was 0.073. The Neuman solution was not used to estimate storativity; instead, the value of storativity was specified at a reasonable value of 1.0×10^{-5} during the analysis in order to limit the number of unknowns and provide better estimates of transmissivity and specific yield.

The transmissivity determined using Cooper-Jacob analysis ranged from 36 to 612 ft^2/d depending on the portion of the recovery curve selected (Appendix B). Average hydraulic conductivity calculated from the four transmissivity estimates and a thickness of 24.5 feet was 10.2 ft/d. The 24.5-foot thickness represents the saturated portion of the well screen before pumping.

Groundwater at well 363-2005-02 met NMWQCC groundwater standards (Table 3). Two water quality samples were collected during the test—one near the beginning of the test and one near the end of the test. Both samples exhibited similar quality. Sulfate concentrations of the two samples were 287 and 297 mg/L; the TDS concentrations were 582 and 607 mg/L. The pH of both samples was 6.46. The water quality samples contained apparently elevated fluoride concentrations of 1.01 and 1.07 mg/L, although subsequent sampling of this well indicated fluoride concentrations in the range of about 0.5 to 0.8 mg/L (Table 3).

Well MB-42, which is about 500 feet from 363-2005-02, did not show a response to pumping during the test. Consequently, the water level data were not analyzed. A water quality sample was collected from MB-42 a few days after the 363-2005-03 aquifer test (Appendix C). This

sample exhibited higher sulfate (396 mg/L) and TDS (779 mg/L) concentrations than well 363-2005-02. Manganese was detected in MB-42 at a concentration of 0.569 mg/L, above the NMWQCC standard.

3.2.4 Test 363-2005-03

This aquifer test complements test 363-2005-02. Well 363-2005-03 is located in the same general area as 363-2005-02 and MB-42 (Figure 4) and is also screened in Gila conglomerate. Well 363-2005-03 served as the pumping well and MB-42 was used as an observation well. Both 363-2005-03 and MB-42 are believed to be located just east and on the upthrown side of the Mangas Fault.

DBS&A conducted the test on November 8 and 9, 2005. Well 363-2005-03 was pumped at a rate of 16.6 gpm for 19.6 hours and then allowed to recover. Total drawdown at the end of the pumping period was 3.9 feet. The water level recovered to within 0.03 foot of the original static water level by the end of the recovery period, which was approximately 4.5 hours.

Well 363-2005-03 drawdown and recovery data were analyzed by fitting a Theis solution to the data. A Cooper-Jacob straight line approach was used to analyze the recovery data. The Cooper-Jacob and Theis analyses yielded transmissivity values of 8,750 and 2,039 ft^2/d, respectively (Table 5). Average hydraulic conductivity calculated from the two transmissivity values and a thickness of 25.8 feet was 209 ft/d. The 25.8-foot thickness represents the saturated portion of the well screen before pumping. This aquifer test indicated a very high hydraulic conductivity relative to other Gila conglomerate values. The storativity value of 9.5×10^{-10} determined from the Theis analysis is unreasonably low, possibly due to the poor fit of the Theis solution to early drawdown data (Appendix B).

Water quality samples were collected for well 363-2005-03 at the beginning of the pumping period and after the recovery period. The two samples showed similar water quality (Table 3). Sulfate concentrations of the two samples were 283 and 284 mg/L, the TDS concentrations were 580 and 571 mg/L, and the pH values were 6.78 and 6.83, respectively. The water quality

samples exhibited elevated fluoride concentrations of 1.24 and 1.22 mg/L, but met the NMWQCC standard (Table 3).

Well MB-42 (about 490 feet from well 363-2005-03) did not show a response to pumping during the test. Consequently, the water level data were not analyzed. A water quality sample was collected from MB-42 a few days after the 363-2005-03 aquifer test (Appendix C). As mentioned in Section 3.2.3, the sample exhibited slightly higher sulfate (396 mg/L) and TDS (779 mg/L) concentrations than well 363-2005-03, and exceeded the NMWQCC standard for manganese.

3.2.5 Test 363-2005-04

One of the goals of this multi-well test was to more thoroughly evaluate water quality in the vicinity of well MB-29. Monitor well 363-2005-04 was installed as a potential replacement well for MB-29, which has a dog leg in the casing and is thought to possibly have a compromised casing or annular seal. Well MB-29 has exceeded NMWQCC groundwater standards for sulfate and TDS since about 2003, and concentrations of these constituents are rising. During this test, MB-29 was monitored as an observation well. MB-29 is located approximately 54 feet from 363-2005-04, and both wells are screened in Gila conglomerate (Figure 4).

DBS&A conducted the test between November 11 and 15, 2005. Well 363-2005-04 was pumped at a rate of 17.8 gpm for 72.5 hours and then allowed to recover. Total drawdown values at wells 363-2005-04 and MB-29 at the end of the pumping period were 16.3 and 8.5 feet, respectively. At the end of a 17.5-hour recovery period, water levels recovered to within 4.2 and 1.6 feet, respectively, of the original static water levels.

Aquifer test data for both 363-2005-04 and MB-29 were analyzed using a Cooper-Jacob straight line approach and Theis solution; however, only the analysis completed using the observed drawdown and recovery in MB-29 is reported because this is believed to be the most accurate test (multi-well tests generally provide a better estimate of aquifer parameters than single-well tests). Transmissivity estimates based on MB-29 data using the Cooper-Jacob and Theis methods were 157 and 74 ft^2/d, respectively (Table 5). Average hydraulic conductivity

calculated from the transmissivity values was 2.9 ft/d; this calculation assumed a saturated thickness of 40 feet, which was the saturated screen interval of MB-29 prior to pumping. The storativity value determined from the Theis analysis was 0.026.

Groundwater at wells 363-2005-04 and MB-29 exceeded NMWQCC groundwater standards for sulfate and TDS (Table 3 and Appendix C). Two water quality samples were collected from 363-2005-04—one near the beginning and one near the end of the pumping period. The analytical results for the two samples collected from well 363-2005-04 were nearly identical (Table 3). A water quality sample was collected from MB-29 a few days after the aquifer test. Water quality analytical results at the two wells were comparable, although iron was detected at 363-2005-04 and not at MB-29. Sulfate and TDS concentrations ranged from 794 to 820 mg/L and 1,320 to 1,370 mg/L, respectively, with the higher concentrations observed at well MB-29 (Appendix C). The pH at both wells was approximately 6.5. It appears that seepage along the casing or annular space of MB-29 is not the primary mechanism of groundwater impacts in this area; if it were, it is likely that a decrease in constituent concentrations would have been observed after pumping well 363-2005-04 for three days at a rate of nearly 18 gpm.

3.2.6 Test 455-2005-01

Monitor well 455-2005-01 was installed as a replacement well for GLD-7A, which could not be sampled due to inadequate water column. During winter 2004, however, the water level in GLD-7A recovered. GLD-7A was monitored as an observation well during this multi-well test to see if it is hydraulically connected to the deeper replacement well. The bottom of the GLD-7A well screen is approximately 40 feet higher than the top of the 455-2005-01 well screen. The two wells are located approximately 43 feet apart and are both screened in Tertiary quartz monzonite (Figure 4).

DBS&A conducted the test on November 16, 2005. Well 455-2005-01 was pumped at a rate of 1.1 gpm for 8 hours and then allowed to recover. Total drawdown at well 455-2005-01 at the end of the pumping period was 87.2 feet. The water level recovered to within 2.8 feet of the original static water level by the end of the recovery period, which was 15 hours.

Well 455-2005-01 drawdown and recovery data were analyzed by fitting a Theis solution to the data. A Cooper-Jacob straight line approach was used to analyze the recovery data. The Cooper-Jacob and Theis analyses yielded transmissivity values of 0.59 and 0.93 ft^2/d, respectively (Table 5). Average hydraulic conductivity calculated from the two transmissivity values and a thickness of 29.4 feet was 0.03 ft/d. The 29.4-foot thickness represents the saturated portion of the well screen before pumping. The storativity value of 0.030 was determined from the Theis analysis.

Well GLD-7A did not show a response to pumping during the test. The lack of response may have been due to the low pumping rate and short pumping duration. Only 1 foot of drawdown would be expected at well GLD-7A after approximately 7.5 days of pumping at a rate of 1.1 gpm based on transmissivity and storativity values of 0.93 ft^2/d and 0.03, respectively.

Groundwater at well 455-2005-01 exceeded NMWQCC groundwater standards for fluoride, iron, and manganese (Table 3). Water quality samples were collected from the well at the beginning and end of the pumping period. The sample collected at the end of the pumping period showed an increase in sulfate and TDS concentrations relative to the sample collected at the beginning of the test (Table 3). The sulfate concentration increased from 57.5 to 114 mg/L, and the TDS concentration increased from 278 to 333 mg/L. The pH decreased very slightly, from 6.29 to 6.26. Water quality samples collected since the completion of the aquifer test have been very similar to the first sample collected during the aquifer test. There was one water quality sample collected at this well prior to the aquifer test. This sample was similar in quality to other samples collected at this well, with the exception of a very high copper concentration, which was likely due to sampling or laboratory error.

3.3 Summary of Aquifer Test Results

Summary and analysis of previous aquifer tests conducted at the Tyrone Mine are provided by DBS&A (1997). DBS&A (1997) divides the geologic formations that occur at the Tyrone Mine into three primary hydrogeologic (or hydrostratigraphic) units: (1) igneous rocks (primarily granite and quartz monzonite), (2) Gila conglomerate, and (3) alluvium. No aquifer tests were conducted within saturated alluvium as part of the investigations documented in this report. The

hydraulic conductivity values determined from tests in the igneous rocks and the Gila conglomerate were similar, for the most part, to the values previously determined, with several exceptions. For example, the minimum hydraulic conductivity determined from the new testing conducted for the igneous rocks was 0.03 ft/d at well 455-255-01, whereas the minimum value listed in DBS&A (1997) was 0.232 ft/d. In addition, the maximum value of hydraulic conductivity in Gila conglomerate was determined to be more than 200 ft/d at well 363-2005-03, while the maximum value listed in DBS&A (1997) was 35 ft/d. Other aquifer parameter values fall within the previously determined ranges.

In addition, the geometric mean of the hydraulic conductivity values determined for each hydrogeologic unit from the new tests is similar to that provided in DBS&A (1997). For example, the geometric mean of the hydraulic conductivity values determined for the Gila conglomerate in the recent tests is 13.9 ft/d based on 5 values, or 7.1 ft/d if the very high value at well 363-2005-03 is excluded. These values are reasonably close to the previous geometric mean of 7.3 ft/d reported in DBS&A (1997). The geometric mean of the hydraulic conductivity values determined for igneous rocks in the recent tests is 1.3 ft/d based on 4 values, while the mean reported in DBS&A (1997) is 2.5 ft/d based on 8 values. The hydraulic conductivity values determined for igneous rocks are representative of fractures or fracture zones intercepted by a given well. The bulk permeability of the igneous rock body is expected to be lower (in some cases substantially so) than that determined from aquifer testing.

Although not delineated from the aquifer tests conducted to date, research at other sites indicates that there may be a significant difference in the hydraulic conductivity between the oxide zone and the enrichment blanket and sulfide zone that has developed as part of the weathering process in the porphyry copper deposit (Schmidt et al., 1997). At the Tyrone Mine, these zones are developed in both the Precambrian granite and in the Tertiary quartz monzonite porphyry. The weathering of sulfides in the oxide zone creates pore space that can significantly increase the hydraulic conductivity of the oxide zone relative to the underlying enrichment blanket. The enrichment blanket is a zone of precipitation of minerals that tends to decrease pore space and hydraulic conductivity relative to that of the parent sulfide zone. The sulfide zone underlies the enrichment blanket and may have a hydraulic conductivity between that of the oxide zone and the enrichment blanket. This conceptual model construct may explain some

of the observed variation in hydraulic properties of the igneous rock hydrogeologic unit in the Mine/Stockpile area.

Storage coefficients are not compared due to the limited duration of most of the aquifer tests. In general, short-term tests (several hours to several days) are of insufficient duration to determine a long-term specific yield for a thick unconfined aquifer. Specific yield determined from aquifer tests of relatively short duration will generally be lower than the true specific yield that will govern the storage or release of water over periods of months or years.

4. Additional Investigation Activities

This section discusses investigation activities conducted in addition to monitor well installation and aquifer testing. A study of the vadose zone in Oak Grove Wash is presented in Section 4.1. Section 4.2 contains a discussion of Deadman Canyon activities.

4.1 Oak Grove Wash

A vadose zone investigation was performed in two regions of Oak Grove Wash formerly saturated with pregnant leach solution (PLS) (Figure 5). The purpose of the vadose zone investigation was to determine whether recharge could remobilize residual constituents from fugitive PLS. The investigation consisted of (1) collecting sediment samples formerly saturated with fugitive PLS, (2) determining if formerly saturated portions of the shallow perched zone may experience transient pulses of saturation due to surface water runoff events or other causes, and (3) estimating water quality that could occur within the transient pulses if they occur.

4.1.1 Soil Borings

In August 2005, two soil borings (363-2005-B1 and 363-2005-B2) were drilled in Oak Grove Wash (Figure 5). The borings were advanced through alluvium to the top of the underlying Gila conglomerate using a hollow-stem auger drill. Soil boring 363-2005-B1 is located in Oak Grove Wash upgradient of the confluence with Brick Kiln Gulch and was drilled to a depth of 28 feet. Soil boring 363-2005-B2 is located approximately 7,800 feet downgradient of the confluence and was drilled to 86 feet (Figure 5). As the borings were advanced, a DBS&A field geologist collected cuttings at 5-foot intervals and described their lithology (Appendix A). After sample collection, the borings were backfilled with cuttings and bentonite. Paste pH and paste EC values for samples collected at each borehole are shown on the geologic logs in Appendix A.

4.1.2 Transient Pulse Analysis

Evaluation of whether transient pulses of saturation occur within the Oak Grove Wash perched zone is ongoing. In May 2007, DBS&A installed In-Situ Aqua TROLL 200 instruments in two

perched zone monitor wells, OG-3 and OG-61. The wells selected are in the deepest portion of the former perched zone in Oak Grove Wash (Figure 5). Perched zone well OG-3 is located near soil boring 363-2005-B1, above the confluence of Oak Grove Wash with Brick Kiln Gulch. Perched zone well OG-61 is located downgradient of the confluence, approximately 2,400 feet upgradient of soil boring 363-2005-B2. When saturated conditions exist, the instruments will monitor and record water level, temperature, EC, and salinity. Data from the instruments will be downloaded at regular intervals and provided to the NMED in future reports provided under the Tyrone Stage 1 APP (DP-1341 Condition 34). If pulses of transient saturation are observed, an attempt will be made to correlate the occurrences to known precipitation or snowmelt events. Any trends in EC will also be evaluated.

4.1.3 SPLP Analysis

Cutting samples from the two Oak Grove Wash boreholes were submitted to SVL for Synthetic Precipitation Leaching Procedure (SPLP) testing (U.S. Environmental Protection Agency [EPA] method 1312). The SPLP method is designed to predict and determine the potential for leaching metals into groundwater and surface water. The procedure uses a 1 to 20 solid to liquid ratio and a rigorous leach of the materials (18-hour agitation). The extraction fluid has an initial pH of 5.0. This pH is used to determine the leachability of soils west of the Mississippi River. In general, the cutting samples were submitted starting at the interval closest to but above the former PLS free surface, continuing at 5-foot intervals to the bottom of the boring.

The results of SPLP analysis for the sample intervals and a borehole average for each constituent are provided in Table 6 for borehole 363-2005-B1 and Table 7 for borehole 363-2005-B2. The complete SPLP laboratory results are provided in Appendix D. With the exception of pH, copper, and manganese, all average extract concentrations for soil boring 363-2005-B1 were below NMWQCC groundwater standards (Table 6). Individual exceedances occurred for pH, cadmium, cobalt, copper, and manganese. For soil boring 363-2005-B2, average borehole pH, copper, iron, and manganese concentrations were above NMWQCC standards, although significant concentrations of iron were only indicated in the SPLP result for the 30 to 31.5 foot below ground surface (bgs) depth. Individual exceedances of pH, aluminum,

cadmium, cobalt, copper, iron, and manganese occurred in selected samples in soil boring 363-2005-B2 (Table 7).

The SPLP pH was between 4 and 6 in most samples. The pH exceedances may be attributed to the starting extract fluid pH because the initial pH of 5 is out of compliance with NMWQCC standards. If the alluvium above and upgradient of the PLS-impacted zones transmits recharge water downgradient to the impacted zones, the pH might be buffered at a higher value than 5 prior to encountering the PLS-impacted zone. The buffering agent would be carbonate in the alluvium. This might lead to higher pH values in the temporarily saturated alluvial zones that have been impacted by PLS when recharged by natural means as opposed to the lower pH values suggested by the SPLP results. For example, the SPLP pH values of the uppermost zones tested in 363-2005-B1 and 363-2005-B2 were 6.4 and 8.7, respectively. There was also measurable alkalinity in these extracts.

Some of the exceedances of aluminum and iron seem anomalous. At the SPLP pH values measured in these samples, the concentrations of aluminum and iron should be lower than the NMWQCC groundwater standards because the solubility of hydroxides of these constituents is very low. One possibility is that the aluminum and iron measured in these samples was in colloidal form. The filter pore size used to collect the SPLP extracts, as stated in EPA method 1312, is 0.6 to 0.8 micrometers (µm). This pore size is large enough to allow colloidal particles of aluminum and iron hydroxide to pass through the filter and into the extract sample container. The apparent dissolved concentrations of these constituents would then be too high.

The exceedances of manganese are also problematic given that the sediments are exposed to atmospheric levels of oxygen. Under these conditions, manganese is usually precipitated as hydroxides and oxides of Mn^{+6}. It is only under lower redox conditions that manganese is soluble in the Mn^{+2} form. Such conditions are usually maintained in a deep saturated groundwater environment, not in an ephemeral alluvial channel that is only saturated during recharge events. As described above, it is possible that colloidal forms of manganese passed through the filter used to extract the leachate samples for analysis. The entrainment of particulate manganese into the extract sample could make the apparent dissolved concentration of that constituent and possibly other constituents too high.

4.1.3.1 Quality Assurance and Quality Control

Most SPLP analyses met quality assurance and quality control criteria for laboratory preparation blanks, laboratory control (spiked) samples (LCSs), and duplicates. Recoveries for the LCSs ranged from 93 to 108 percent. Recoveries for most duplicates were between 90 and 107 percent. Recoveries for selected duplicate analyses for aluminum were as high as 115 percent. For copper, zinc, chloride, and iron, the duplicate recoveries were as low as 85, 74, 67, and 57 percent, respectively.

4.1.3.2 SPLP Test Implications

The SPLP results indicate that low pH and some metals (i.e., copper and manganese) may be mobilized from PLS-impacted zones as a result of ephemeral recharge events in the alluvial channels of Oak Grove Wash. The SPLP concentrations only provide a qualified estimate of the water quality that would be expected in these perched zones. Due to uncertain water to rock ratios in the field, exceedances of some constituents might occur, but it is difficult to say which constituents and at what absolute concentrations. In addition to the complications described above, there may be mixed water qualities resulting from flow down the alluvial channels through other zones impacted by PLS. The cumulative concentrations of these constituents can only be predicted through reactive transport modeling or observed through groundwater sampling. As detailed above, two In-Situ Aqua TROLL 200 instruments have been installed in Oak Grove Wash perched zone wells to observe transient pulses of saturation as (and if) they occur; these instruments will also monitor TDS concentrations under saturated conditions.

4.2 Deadman Canyon

Investigation into the relationship between the shallow alluvial aquifer and the regional igneous aquifer in the Deadman Canyon area is also ongoing. Four Deadman Canyon monitor wells were equipped with In-Situ Aqua TROLL 200 instruments in May 2007 (Figure 6). These instruments simultaneously monitor and record water levels, temperature, EC, and salinity. In the southern portion of Deadman Canyon, upgradient of the mine area, instruments were installed in regional well TWS-8 and shallow well 166-2006-01. Downgradient (north) of Seep 5E, instruments were installed in wells 166-2006-02 (regional) and 166-2006-03

(perched). Data from these instruments will be downloaded at regular intervals and provided to the NMED in future reports provided under the Tyrone Stage 1 APP (DP-1341 Condition 34).

5. Database Review and Hydrogeologic Conceptual Models

One of the proposed tasks in the Condition 82 work plan is review of the Tyrone environmental database with the intent of identifying and correcting significant errors, particularly those that might affect the existing conceptual models of groundwater flow and contaminant transport or required reporting of various groundwater conditions. The Tyrone environmental database is used primarily to manage and store water level and quality data collected at monitor wells, springs, seeps, and other locations in and around the Tyrone Mine. The database houses location information of the various sampling sites as well as construction details of monitor and other wells. Information contained in the database is used to produce report figures, maps, and tables and to perform hydrogeologic analyses. The majority of the effort devoted to this task involved the consideration and evaluation of the designation of monitor wells as perched versus regional, as well as a review of well completion and historical water level and dissolved constituent trends. The more significant results of this review and analysis are provided in Section 5.1.

The final task under Condition 82 was the reconsideration and evaluation of existing conceptual models of groundwater flow and contaminant transport, taking into account the water level, water quality, and hydrogeologic information obtained from newly collected data. This task is ongoing as part of the Stage 1 APP, as additional characterization activities have been proposed in response to NMED comments (DBS&A, 2006a and 2006b). Consideration of the available data from DP-1341 additional investigation activities in relation to conceptual hydrogeologic models of groundwater flow and solute transport is presented in Section 5.2.

5.1 Summary of Changes to Environmental Database

While conducting a review of well logs, well completion information, and associated well aquifer designations in preparation for development of the updated groundwater flow model (DP-1341 Condition 83) and as part of Stage 1 APP activities (DP-1341 Condition 34), DBS&A identified a number of wells as having a regional aquifer designation that was incorrect. Table 8 provides a summary of these wells and the reason for changing their designation, a summary of some

other database corrections, and some comments on other wells that should be considered when preparing water level maps.

In addition to the wells presented in Table 8 that had an improper aquifer designation, the observed hydrologic response of some other monitor wells designated as regional monitor wells is questionable due to the well completion. Most of these wells are (or were) in the No. 2 stockpile complex area or the Gettysburg Pit area and were completed during the 1980s or early 1990s. A common construction method for these wells was to place about 5 feet of bentonite on top of the sand pack that envelops the well screen, and then fill the remainder of the annular space with cuttings to near surface, at which point another thin layer of bentonite was emplaced and then the annular space was grouted to surface. Observed water levels at many of these wells have risen markedly with time since leaching was initiated in the No. 2 stockpile area during the 1980s. The rise in water levels may be due, at least in part, to downward seepage along the annular space backfilled only with cuttings. This hypothesis is supported by a commensurate deterioration in water quality (increasing trends in sulfate and TDS concentrations) at many of these wells. Through time many of these early wells have been destroyed or abandoned and replaced. Wells that have been replaced typically have a much improved annular seal that should effectively limit well bore seepage. Existing monitor wells within the Mine/Stockpile unit designated as regional aquifer wells that may exhibit fluid level and fluid quality measurements influenced by borehole seepage are listed in the last row of Table 8.

An additional data quality assurance item that has been considered is the existence of some water levels in the Tyrone environmental database that are below the bottom of the screened interval of a given well, and therefore represent sump water or possibly an incorrect measurement. Prior to plotting water levels for any water level maps, the elevation of the reported water level should be compared to the bottom of screen; if the reported water level falls below the bottom of the screen, the well should be considered dry and the water level should not be plotted. In addition, water quality samples for the same period should be disregarded, as they are also representative of sump water rather than aquifer water adjacent to the well screen.

The corrected designations and interpretations presented above have been incorporated into various hydrogeologic analyses as they have been discovered or confirmed. For example, perched water levels have been eliminated from regional water level maps prepared for DP-1341 Condition 60, and checks are made to screen out sump water database entries from data values plotted for contouring. Both water level and water quality information for the new wells discussed in this report were used in the addendum to the Stage 1 APP (DBS&A, 2006a). DBS&A is in the process of working with PDTI to correct observed discrepancies or inaccuracies in the Tyrone environmental database.

5.2 Data Implications and Assessment of Conceptual Models

The following subsections summarize the analysis and interpretation of the newly collected hydrogeologic, water level, and water quality data relative to groundwater occurrence, potential groundwater flow paths, and identification of contaminant sources. Note that efforts in this regard are continuing under DP-1341 Condition 34, the Stage 1 APP.

5.2.1 Mangas Valley Area

Figure 2 illustrates that regional monitor wells 27-2005-01, 27-2005-02, 27-2005-04, and 286-2005-01 all meet NMWQCC groundwater standards. Well 27-2005-05, at the upgradient edge of the No. 3 tailing impoundment, exceeds the standard for fluoride, and well 27-2005-03, at the upgradient edge of the No. 2 tailing impoundment, exceeds the standards for fluoride and manganese. Water quality at these two wells may be impacted by past or current tailing seepage, or the elevated constituents may be naturally occurring due to the proximity of these wells to the Mangas Fault and uplifted igneous rocks east of the fault. Additional evaluation of the water quality at these wells will be conducted as part of the background geochemistry evaluation proposed as part of the Tyrone Stage 1 APP (DBS&A, 2004).

Well 27-2005-03 is completed in Precambrian granite on the upthrown side of the Mangas Fault, and has a significantly higher water level than the interpolated water level on the downthrown (Mangas Valley) side of the fault (Figure 7). The observed water level at this well indicates that the Mangas Fault, at least in the vicinity of 27-2205-03, is a significant barrier to horizontal

groundwater flow. This observation is consistent with the regional groundwater flow map presented by Trauger (1972).

Well 27-2005-06 exceeds NMWQCC groundwater standards for TDS and sulfate (Figure 2). The source of impacts to well 27-2005-06 is either seepage from the No. 3X tailing impoundment or seepage from facilities related to the impoundment, such as stormwater runoff catchments. Well 19, approximately 1,000 feet southwest of well 27-2005-06, is impacted but does not exceed NMWQCC standards (Figures 7 and 8). Well 47, about 2,400 feet west (downgradient) of well 27-2005-06, not only meets standards but has very low TDS and sulfate concentrations of about 200 to 250 mg/L and 15 mg/L, respectively (Figures 7 and 8).

Additional groundwater characterization activities have been proposed in the Mangas Valley under the Stage 1 APP (DBS&A, 2006b).

5.2.2 No. 3 Stockpile Area

Of the two Condition 82 wells drilled in the No. 3 stockpile area, well 286-2005-01 meets NMWQCC groundwater standards, while well 286-2005-02 exceeds standards for TDS and sulfate (Figure 2). The source of impacts to well 286-2005-02 is most likely seepage from the No. 3 stockpile. A significant number of new wells (both monitor and future extraction) have been installed at the No. 3 stockpile in anticipation of stockpile reclamation. The water levels and sampling results obtained from these wells will be submitted as part of a separate report and as part of semiannual and annual DP-286 reporting, and are not further evaluated here.

5.2.3 Northwestern Mine/Stockpile Area

Regional wells 435-2005-01, 435-2005-02, 435-2005-03, 166-2005-04, 166-2006-02, 166-2006-05, and 166-2006-06 were completed in the northwestern portion of the Mine/Stockpile unit and in the area between the No. 2 stockpile complex and the No. 1A tailing impoundment (Figure 3). Groundwater information in some portions of this area was sparse or non-existent prior to the installation of these wells. Three existing wells installed near the SX-EW plant in 1996 (SXMW01, SXMW02, and SXMW03) went dry by the first quarter of 1999

due to the drawdown effects of the Main Pit. Figure 3 summarizes the observed water quality in the newly constructed wells.

Wells 435-2005-02, 166-2006-05, and 166-2006-06 meet NMWQCC groundwater standards. Well 435-2005-02 may have elevated concentrations of fluoride, TDS, and sulfate, while wells 166-2006-05 and 166-2006-06 may have elevated concentrations of copper, fluoride, TDS, and sulfate (Table 3). The most likely source of elevated constituents for well 435-2005-02 is the No. 2A leach stockpile. The most likely source of elevated constituents for wells 166-2006-05 and 166-2006-06 is downward seepage of impacted water that flows through Deadman Canyon.

Although fluoride concentrations in well 435-2005-03 exceeded the NMWQCC standard for some sampling events, there are no apparent elevated concentrations of other constituents (Table 3). Similarly, fluoride and manganese concentrations in well 435-2005-01 exceeded NMWQCC standards, but the well had no apparent elevated concentrations of other constituents. The elevated constituent concentrations at these wells may be naturally occurring; additional evaluation of the water quality at these wells will be conducted as part of the background geochemistry evaluation proposed as part of the Tyrone Stage 1 APP (DBS&A, 2004).

Well 166-2005-04 exceeds standards for fluoride and TDS; the concentration of sulfate in this well is very close to, but does not exceed the standard (Table 3). Groundwater at this location has most likely been impacted by seepage from a PLS storage pond at the SX-EW plant, or possibly by leach stockpile seepage. Regional well 166-2006-02 in Deadman Canyon exceeds standards for copper, manganese, sulfate, TDS, and pH. Well 166-2006-03, the paired shallow well at this location, exceeds standards for cadmium, cobalt, copper, manganese, and pH. Sulfate and TDS concentrations in this well are elevated but do not exceed standards. The most likely source of impacts to these wells is seepage from the Seep 5E area. Note that at this location, seepage from the saturated alluvial sediments downward to the saturated zone in the underlying granite may account for impacted regional groundwater (compare water level elevations for wells 166-2006-02 and 166-2006-03 in Table 2). Additional characterization of sources of groundwater impacts in Deadman Canyon is proposed as part of the Stage 1 APP (DBS&A, 2006b).

Figure 9 is a contour map of regional groundwater elevations in the northwestern portion of the Mine/Stockpile unit. Figure 10 illustrates the regional groundwater contours overlaid on a map of water quality. The regional water table surface in Figure 9 is generally consistent with previous water table maps and hydrogeologic interpretations developed for this region. Specifically, the direction of regional groundwater flow is east-northeast from the Big Burro Mountains towards the SX/EW plant. Regional groundwater beneath the SX/EW plant eventually flows to the Main Pit, potentially aided by the Burro Chief Shaft and associated underground workings that breached the Burro Chief Fault. The Southern Star Fault is a significant barrier to horizontal groundwater flow, as observed water levels north of the fault are more than 100 feet higher than those south of the fault (e.g., compare wells 435-2005-03 and 435-2005-01 in Figure 9). Regional groundwater flow north of the Southern Star Fault is to the west-northwest away from the No. 3 stockpile, and turns to the north to approximately coincide with the original Deadman Canyon drainage covered by the No. 1X tailing impoundment.

Two additional features of the regional groundwater flow field in this area are notable. First, the observed water levels at wells 435-2005-01, 435-2005-02, and 166-2005-04 indicate a very flat potentiometric surface relative to other portions of the Mine/Stockpile unit. The relatively flat gradient in this region indicates a relatively high hydraulic conductivity, a limited amount of groundwater flow, or a combination of both of these factors. Secondly, the observed hydraulic head in regional well 166-2006-02 is near land surface (depth to water is about 7 feet) (Table 2). Consideration of this new data point causes a notable high point in the contoured potentiometric surface and a steepening of the hydraulic gradient (Figure 9). Well 166-2006-02 is completed in Precambrian granite, but is very close to the contact between Precambrian granite and Tertiary quartz monzonite. The observed water level may indicate a significant hydraulic conductivity contrast (lower value in the granite and higher value in the quartz monzonite) near this well location.

5.2.4 Perched Water in Deadman Canyon Alluvium

Two wells were constructed into Deadman Canyon perched water: 166-2006-03 and 166-2006-01 (Figure 3). As discussed in the previous section, well 166-2006-03 exceeds standards for cadmium, cobalt, copper, and manganese. Sulfate and TDS concentrations are

elevated but do not exceed standards. Well 166-2006-01 is a perched zone well adjacent to regional well TWS-8 (Figures 1 and 6). Well 166-2006-01 meets all NMWQCC groundwater quality standards, and there are no discernable mine-related impacts to perched water at this location.

The water level at well 166-2006-03 (screened in alluvium, which is about 8 feet thick at this location) is near land surface, which is expected because this well is located at the entrance to the Deadman Canyon narrows north of the Seep 5E area. In the general vicinity of this location, the alluvium pinches out and the shallow alluvial groundwater daylights to form surface water flow in Deadman Canyon (Harlan, Casey & Associates Inc., 1990). The surface water flow is not perennial, and fluctuates with climatic conditions. Within the narrows portion of the canyon, which persists for a length of about 1 mile north of the Seep 5E area, the alluvium ranges in thickness from zero to several feet, and outcrops of the granite bedrock are common. Well 166-2006-05 was installed at approximately the center of this reach (Figure 6). This well is screened from 159 to 189 feet below top of casing (btoc), and the depth to water is about 170 feet (Tables 1 and 2), indicating that water table conditions exist within the granite far below the stream channel at land surface. Within this reach of Deadman Canyon, a shallow alluvial aquifer does not exist.

Farther to the north where the narrows end and Deadman Canyon widens into a broad sandy fan-type feature, well 166-2006-06 was drilled to about 70 feet and is screened from 29 to 59 feet btoc in granite (Figure 1 and Table 1). The alluvium at this location is about 17 feet thick and was not saturated. Based on the findings at this location, it appears that a shallow alluvial aquifer does not occur north of the Deadman Canyon narrows. However, local ephemeral zones of saturation on top of the granite bedrock are likely during, or immediately following, periods of significant Deadman Canyon surface water flow.

Well 166-2006-01 was completed as a dry well on June 17, 2006 in the alluvium adjacent to TWS-8. The alluvium at this location did not become saturated until early September 2006, about 3 months after the well was installed. The results at this well indicate that some portions of the Deadman Canyon alluvium south of the Seep 5E area may be saturated only

ephemerally. A detailed record of saturated conditions at this location, or the lack thereof, will be obtained from the water level transducer record (see Section 4.2).

5.2.5 East Side and Gettysburg Pit Area

A total of 9 new wells and 2 replacement wells have been constructed in the East Side and Gettysburg Pit areas (Figure 1). Details regarding replacement wells constructed in association with reclamation activities (not discussed in this report) will be provided in a DP-396 well installation and abandonment report to be developed by Golder Associates on behalf of PDTI. A number of the new wells were aquifer tested (Figure 4), and approximately half of the wells exceed one or more NMWQCC groundwater quality standards (Figure 3). The additional information available from the new wells, in conjunction with the data quality evaluation discussed in Section 5.1, has led to some updated hydrogeologic interpretations in the East Side area. These new results and interpretations are presented and discussed in the following subsections.

5.2.5.1 Well MB-29 Area

As discussed in Section 3.2.5, monitor well 363-2005-04 was installed as a potential replacement well for MB-29, which has a dog leg in the casing and is thought to possibly have a compromised casing or annular seal. Well MB-29 has exceeded NMWQCC groundwater standards for sulfate and TDS since about 2003, and concentrations of these constituents are rising. Well MB-29 is located approximately 54 feet from well 363-2005-04, and both wells are screened in Gila conglomerate at similar depth intervals. An aquifer test was conducted between November 11 and 15, 2005, where well 363-2005-04 was pumped at a rate of 17.8 gpm for 72.5 hours and then allowed to recover. Well MB-29 was used as a monitor well during the test. In addition to the determination of aquifer parameters, one of the reasons for conducting the test was to evaluate potential changes in water quality during pumping.

Two water quality samples were collected from well 363-2005-04, one near the beginning and one near the end of the pumping period. A water quality sample was collected from MB-29 a few days after the aquifer test. Water quality analytical results at the two wells are comparable (both wells exceed NMWQCC groundwater standards for sulfate and TDS), although iron was

detected at 363-2005-04 and not at MB-29. It appears that seepage along the casing or annular space of MB-29 is not the primary mechanism of groundwater impacts in this area; if it were, it is likely that a decrease in constituent concentrations would have been observed after pumping well 363-2005-04 for three days at a rate of nearly 18 gpm.

5.2.5.2 Area Between the No. 1 Stockpile and Burro Mountain Tailing

As presented in Table 8, wells MB-34 and MB-40 have water levels substantially higher than those observed in Brick Kiln Gulch regional wells to the southwest across the Mangas Fault (e.g., well MB-33). Well MB-34 exceeds NMWQCC groundwater standards for iron, manganese, sulfate, and TDS, while well MB-40 meets all standards. Previous regional water level maps of this area were based on the belief that the water level at these two wells (which are 360 to 380 feet deep) represented regional water, which occurred at a higher elevation on the upthrown (northeast) side of the fault than the downthrown side of the fault. Well 896-2005-01, which has the bottom of screen at 888 feet, was installed to the southeast (downgradient) of MB-34 to evaluate groundwater conditions farther from the stockpile. Well 896-2005-01 exceeds NMWQCC standards for fluoride, iron, and manganese (Figure 3).

The water level at well 896-2005-01 is comparable to that in MB-33, across the Mangas Fault. In addition, shallower water-bearing zones did not occur at well 896-2005-01. These results indicate that the zone of saturation sampled by MB-34 and MB-40 is most likely a perched zone of water, and that regional water at this location occurs at a depth commensurate to regional wells across the Mangas Fault.

5.2.5.3 Pathways of Groundwater Flow near the Sprouse-Copeland Fault

New regional monitor wells 286-2005-03, 670-2005-01, 383-2005-01, 383-2005-02, and 363-2005-01 all contribute to an improved understanding of groundwater flow in the vicinity of the Sprouse-Copeland Fault and the Gettysburg Pit. Unfortunately, well 383-2005-01 had to be plugged and abandoned during the latter part of 2006 due to reclamation activities at the No. 1A and 1B stockpiles.

Figure 11 is one possible representation (called Alternative 1) of the regional water table in this area for the latter part of 2005, when water level information from well 383-2005-01 was

available. The water table contours presented in Figure 11 are generally consistent with those presented as part of previous East Side progress reports and other Tyrone Mine groundwater documents, such as the Stage 1 APP. Groundwater capture zones associated with the Gettysburg and Main Pits are evident in Figure 11. In fact, the observed water levels at wells GLD-3A, 455-2005-01, and GLD-7A are actually lower than the reported Gettysburg Pit water level and the base elevation of the Gettysburg Pit (which is about 5,622 feet above mean sea level [msl]), indicating that drawdown associated with dewatering of the Main Pit has likely caused regional water levels to drop below the base of the Gettysburg Pit. Groundwater west of the Sprouse-Copeland Fault that is not captured by one of the pits moves to the southeast in this alternative, and seeps across the Sprouse-Copeland Fault along unknown pathways. It is clear that the Sprouse-Copeland Fault is a barrier to horizontal groundwater flow in the vicinity of well MB-27 and points to the south, as indicated by the substantial drop in hydraulic head across the fault (Figure 11). Farther to the north along the fault trace, saturated conditions occur within a wedge of Gila conglomerate that is thickest on the southwestern (mine) side of the Mangas Fault. This region is a natural conduit for groundwater flow due to the thick saturated section of permeable Gila conglomerate, and hydraulic effects of the Sprouse-Copeland Fault, if any, are not discernable in the hydraulic gradient (e.g., see wells MB-35 and MB-12).

Another conceptual model of regional groundwater flow for the East Side and Gettysburg Pit areas is presented in Figure 12 (Alternative 2). Alternative 2, like Alternative 1, is consistent with the observed water level data. However, unlike Alternative 1, Alternative 2 is believed to be more consistent with all observed hydrogeologic conditions in this region, and is therefore the preferred conceptualization of East Side regional groundwater flow at this point. In Alternative 2, regional groundwater along the toes of the No. 1A, 1B and 1C stockpiles flows predominately northward, parallel to the Sprouse-Copeland Fault (Figure 12). The northern direction of groundwater flow is consistent with the observation that the fault serves as a barrier to horizontal groundwater flow. Where the Gila conglomerate becomes saturated moving northward, it acts as a drain and funnels groundwater to the southeast in the vicinity of wells MB-35 and MB-12. This overall conceptualization is also consistent with observed water level trends on either side of the Sprouse-Copeland Fault. West of the fault, observed water levels have declined at a more pronounced rate (most likely due to dewatering at the mine pits) than

water levels east of the fault. For example, the observed drawdown rates at regional wells MB-15A, MB-32, and MB-37 range from 2 to 4 feet per year (ft/yr), whereas the observed drawdown rate at regional wells MB-17 and MB-27, located immediately east of the fault, is approximately 0.7 ft/yr. Wells MB-15A, MB-32, and MB-37 (west of the fault) are located a comparable distance from the Gettysburg pit as wells MB-17 and MB-27 (east of the fault)—approximately 3,500 feet.

Although in Alternative 2 the predominate direction of groundwater flow west of the Sprouse-Copeland Fault is to the north, there may be pathways of seepage across the fault, as indicated in Figure 12. One such potential pathway is near well MB-32, which has a significantly lower hydraulic head than adjacent wells MB-37 and MB-15A. Another potential pathway is in the vicinity of well MB-27, which is the only well adjacent to the fault but on the downgradient side that exhibits significant impacts to groundwater quality (Figure 13). The possibility of leakage of poor quality water down the annular space of MB-27 is also being investigated to determine if that mechanism could be a potential source of impacts.

Alternative 2 (Figures 12 and 13) is the preferred East Side conceptual model of groundwater flow and solute transport at this point for the following reasons:

- The regional groundwater flow contours and the directions of groundwater flow are consistent with the observation that the Sprouse-Copeland Fault acts as a significant barrier to horizontal groundwater flow.

- If the direction of groundwater flow were to the east as portrayed in Alternative 1, there should be a noticeable increase in the hydraulic gradient near the fault because a steep hydraulic gradient would be required to transmit groundwater across the low-permeability fault zone. A significant increase in the hydraulic gradient near the fault is not evident from the observed data.

- The Alternative 2 conceptual model is consistent with the observation that mine-related impacts to regional groundwater immediately east of the Sprouse-Copeland Fault are limited. For example, wells MB-17 and 363-2005-01 meet all NMWQCC groundwater

standards, even though a number of wells on the adjacent west side of the fault exceed various standards (Figure 13).

6. Summary and Conclusions

A significant amount of newly collected hydrogeologic data and analysis are provided in this DP-1341 Condition 82 completion report. In addition to specific Condition 82 requirements, much of the new data were collected as part of operational DP requirements, Tyrone Stage 1 APP activities, or due to recommendations made by DBS&A to PDTI. For clarity and completeness, all of the data are provided in this report, and all appropriate data were considered in the evaluation of conceptual models of groundwater flow and contaminant transport pathways summarized in Section 5. At this time, additional groundwater investigation activities are planned as part of the Stage 1 APP for the Mangas Valley and Deadman Canyon areas. The results of these analyses will be provided under Stage 1 APP submittals.

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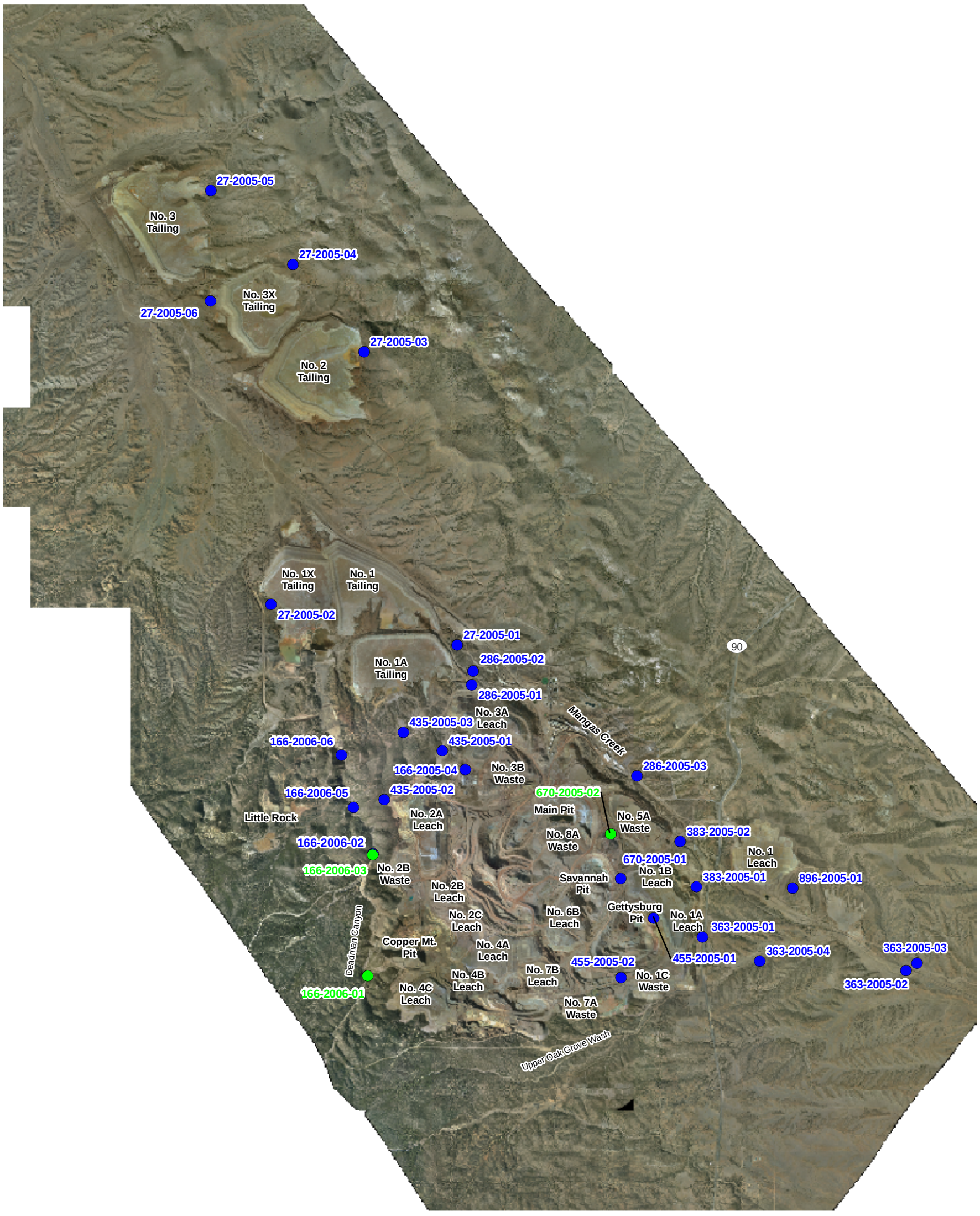
Figures

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG01_INSTALLED_MW.MXD 704250



Explanation

- Regional aquifer well
- Perched zone well

Figure 1

Daniel B. Stephens & Associates, Inc.
05/16/2007 JN LT05.0237

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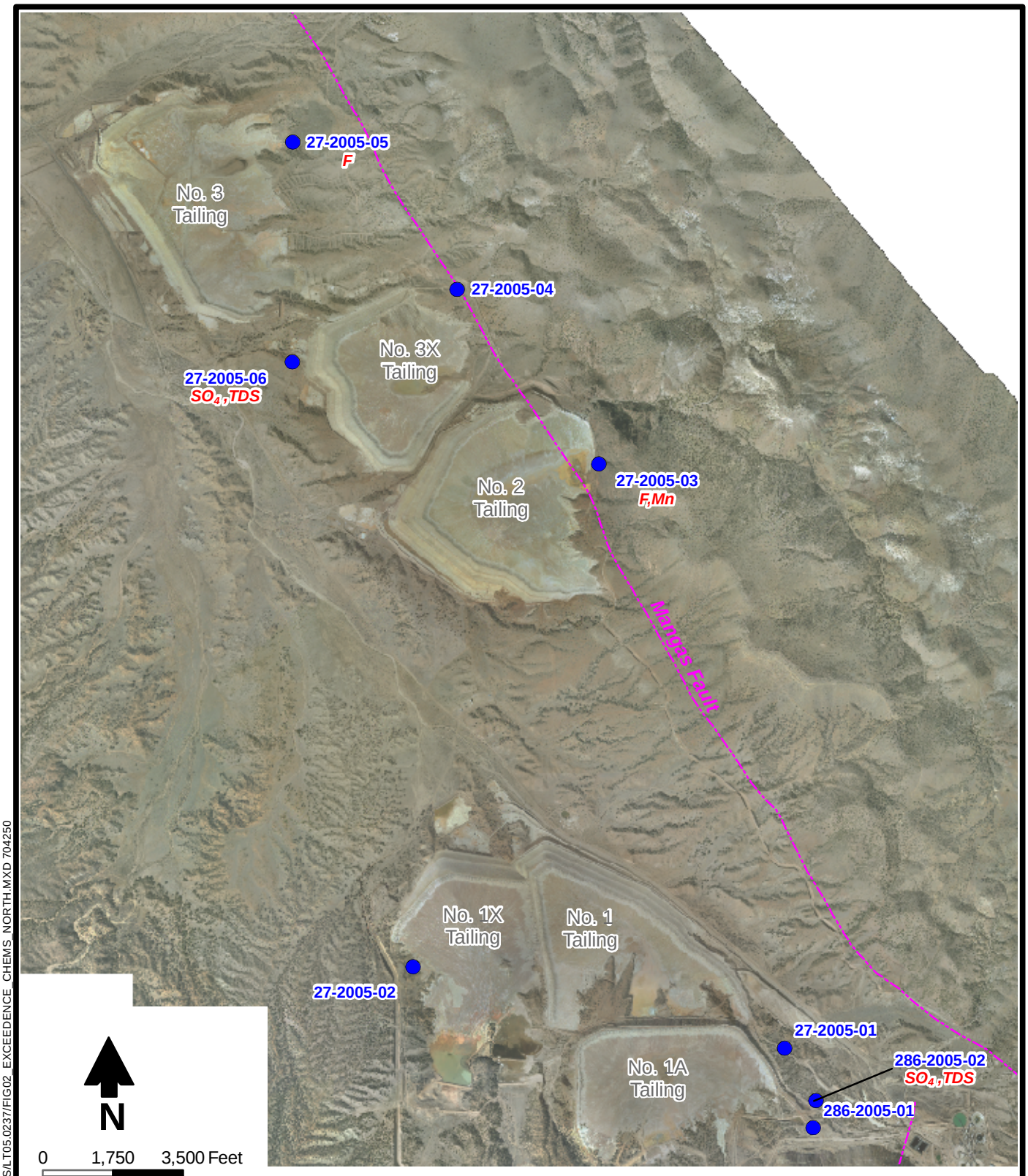
TYRONE DP-1341 CONDITION 82

New Monitor Wells



Explanation

- Regional aquifer monitor well
- SO_4, TDS — Constituents that exceed NMWQCC groundwater standards
- Fault

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG02_EXCEEDENCE_CHEMS_NORTH.MXD 704250

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TYRONE DP-1341 CONDITION 82

Summary of Water Quality for New Mangas Valley Monitor Wells

Daniel B. Stephens & Associates, Inc.

05/17/2007

JN LT05.0237

Figure 2

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG03_EXCEEDENCE_CHEMS_SOUTH.MXD 704250

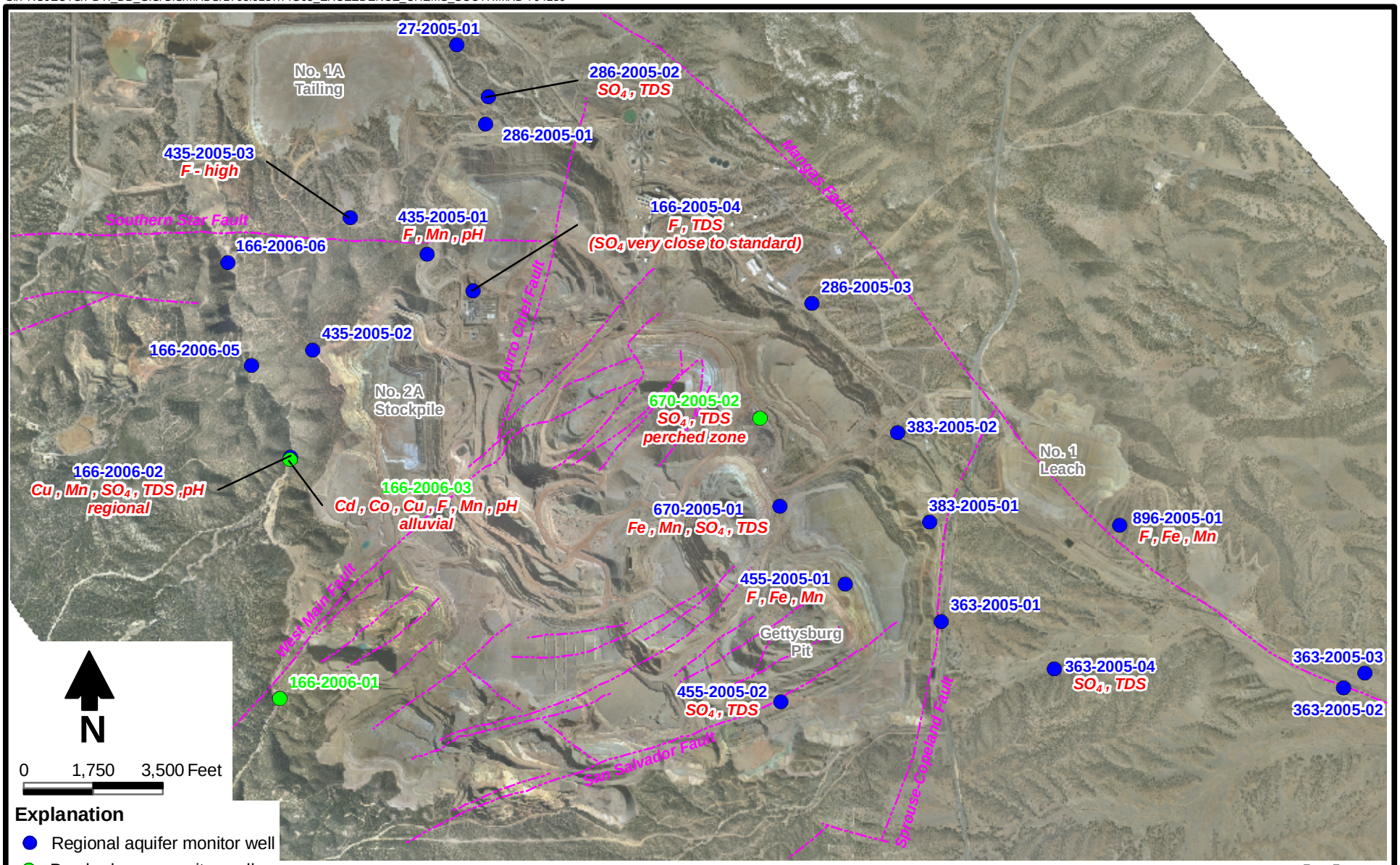

Figure 3

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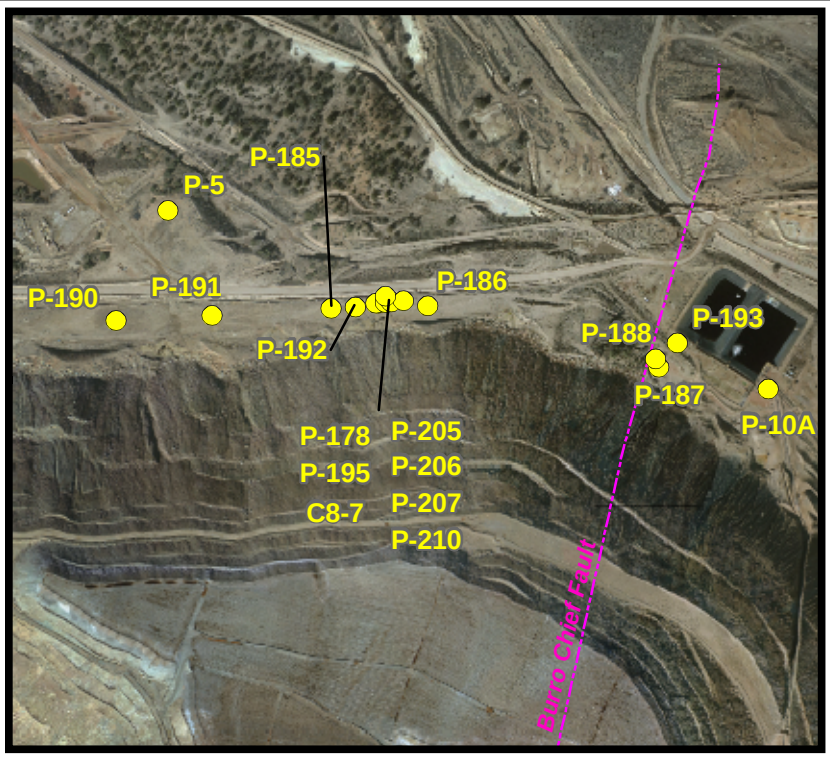
05/17/2007
JN LT05.0237

TYRONE DP-1341 CONDITION 82

Summary of Water Quality of New Monitor Wells

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG04_AQUIFER_TEST_WELLS.MXD 704250



N

0 2,500 5,000 Feet

Explanation

New aquifer test locations
- Observation well
- Pumping well

Previous regional aquifer test locations
- Gila conglomerate/alluvium regional groundwater
- Igneous rock regional groundwater
- Fault

Figure 4

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05/15/2007 JN LT05.0237

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TYRONE DP-1341 CONDITION 82

Wells Used in Aquifer Tests

N

0 750 1,500 Feet

Explanation

- Perched zone water level elevation (ft msl), 2006
- Location of soil boring
- Well with transducer
- OG-45 ● Perched zone monitor well

No. 1 Stockpile
No. 1B Stockpile
No. 1A Stockpile
No. 1C Waste Rock Pile
Burro Mountain Tailing

670-2005-02, MB-10, MB-40, MB-34, 1-4, MB-38
1BU-1, 1B-4, 1B-3, 1B-2, 1BU-2, 1B-1, 1B-9, 1B-8
1A-2, 1A-3, 1A-10, 1A-21, 1A-22, 1A-33, 1A-34, 1A-35, 1A-36, 1A-37, 1A-38
1A-1, 1A-4, 1A-5, 1A-19, 1A-20, 1A-9, 1A-8, 1A-11, 1A-12, 1A-18, 1A-23, 1A-24, 1A-25
1A-6, 1A-7, 1A-14, 1A-13, 1A-15, 1A-16, 1A-26, 1A-27, 1A-28, 1A-30, 1A-31, 1A-32
1A-17, 1A-17A, 1A-29, MB-24, MB-25
396-2006-06, 396-2006-05, 396-2006-01, 396-2006-03
BK-9, BK-10, BK-7, BK-8, BK-6, BK-4, BK-5, BK-3, BK-2, BK-1, BK-11
5900, 5890, 5850, 5870, 5880, 5890, 5940, 5930, 5910, 5900, 5740
OGTU-1, OGTU-2, OGTU-3, OG-33, OG-32, OG-31, OG-30, OG-34, OG-35
OG-11, OG-10, OG-9, OG-8, OG-12, OG-7
363-2005-B1, OG-3
OG-1, OG-2, OG-2S, OG-4, OG-5, OG-13, OG-14, OG-15, OG-26, OG-27, OG-28, OG-29, OG-49
OG-25, OG-36, OG-59, OG-50, OG-60, OG-37, OG-38
5770, 5750, 5740, 5750, 5720, 5710, 5700, 5690
OG-23, OG-24, OG-51, OG-55, OG-57, OG-40, OG-58, OG-56, OG-39
OG-46, OG-61, OG-47, OG-48, OG-41, OG-42, OG-54
5830, 5870, 5860, 5840, 5840
363-2005-B2, OG-44, OG-45, OG-18, OG-17, OG-43, OG-16, OG-22

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TYRONE DP-1341 CONDITION 82

Locations of Soil Borings and Transducers in Oak Grove Wash

Daniel B. Stephens & Associates, Inc.
07/26/2007
JN LT05.0237

Figure 5

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG05_LOCS_SB_TRANSDUCERS_OAK_GROVE_WASH.MXD 704250

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG06_LOCS_TRANSDUCERS_IN_DEADMAN_CANYON.MXD 704250

Explanation

- Well with transducer
- Regional aquifer well
- Perched zone well

Figure 6

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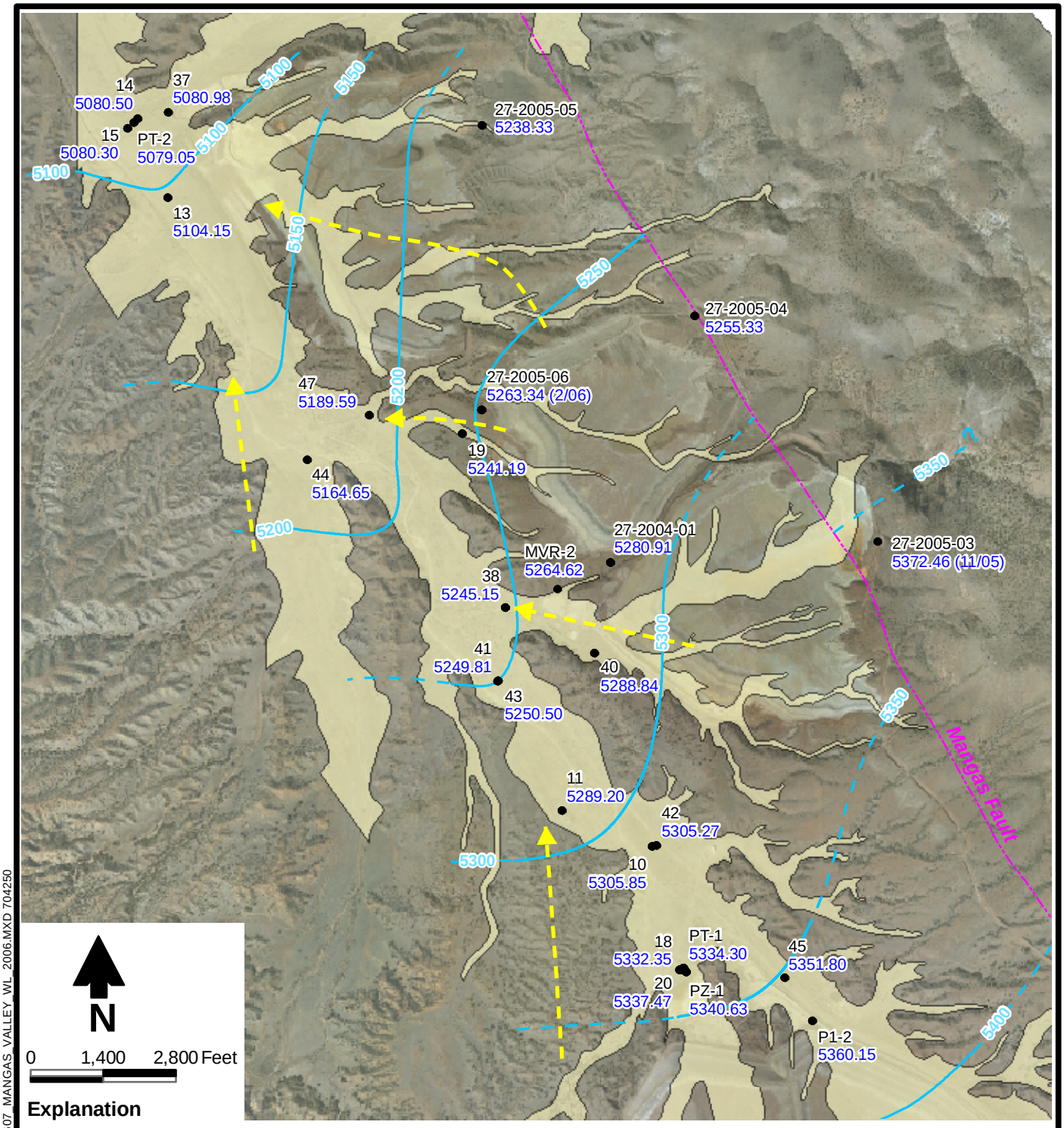
05/16/2007 JN LT05.0237

TYRONE DP-1341 CONDITION 82

Locations of Transducers in Deadman Canyon



Explanation

- 41 / 5249.81 — Regional aquifer monitor well with water level elevation (ft msl)
- Water level elevation contour (ft msl), dashed where inferred (contour interval 50 ft)
- Fault
- Alluvium
- Potential groundwater flow pathway

Note: Water level elevation data are for the second half of 2006 unless otherwise noted (e.g. 2/06).

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TYRONE MINE DP-1341 CONDITION 82

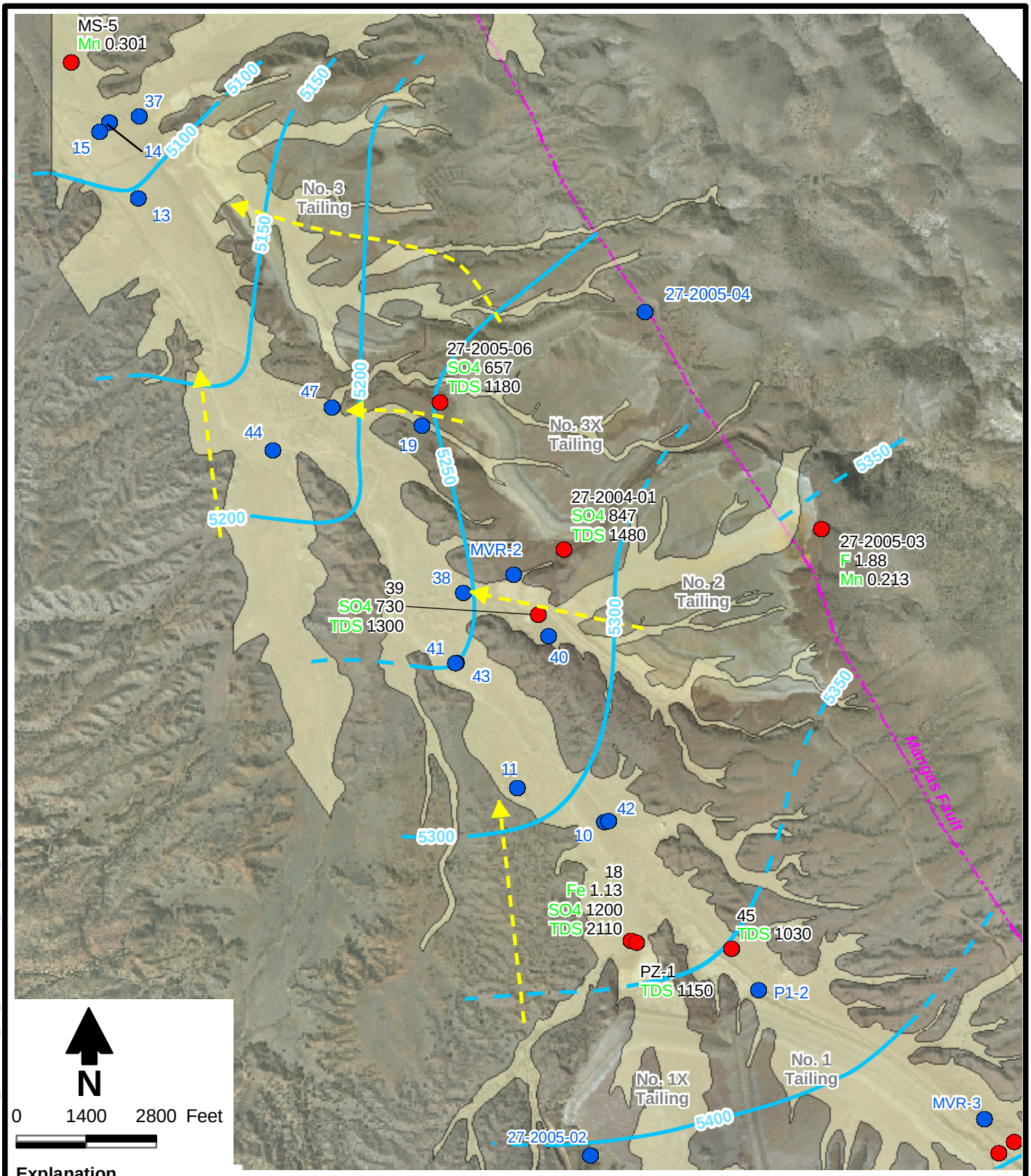
Regional Groundwater Elevation for Mangas Valley Tailing Area, 2006

Daniel B. Stephens & Associates, Inc.

05/21/2007 JN LT05.0237

Figure 7

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG07_MANGAS_VALLEY_WL_2006.MXD 704250



Explanation

Monitor well

- Well equals or exceeds one or more standards
- Well below all standards
- Fault
- Potential groundwater flow pathway

Notes:
1. Concentration values in mg/L.
2. Exceedances based on Section 20.6.2.3103 NMAC List A, B, and C standards for most recent sample taken from 2005 to 2006.

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TYRONE MINE DP-1341 CONDITION 82

Regional Groundwater Elevation and Water Quality for Mangas Valley Tailing Area, 2006

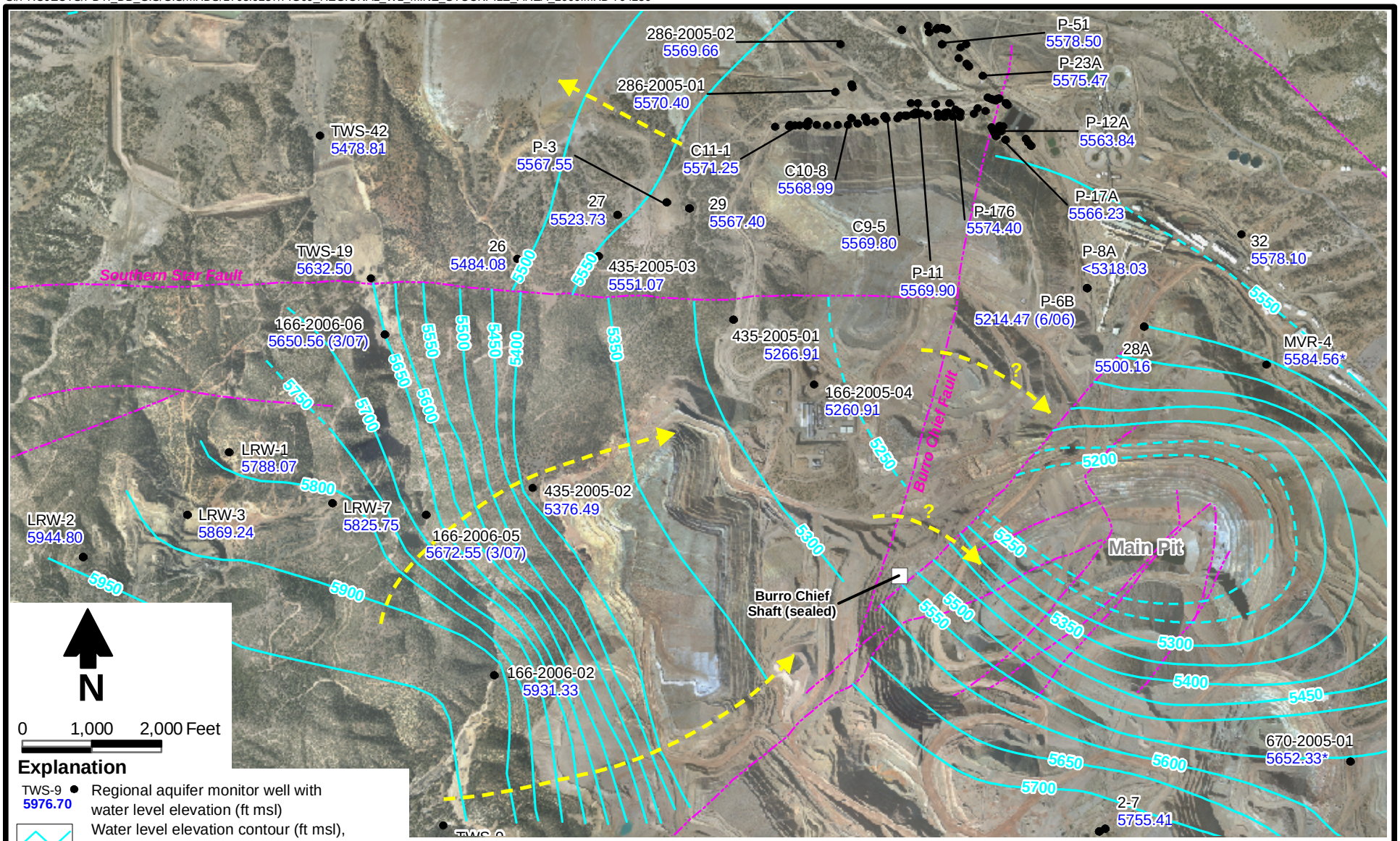
Daniel B. Stephens & Associates, Inc.

05/23/2007 JN LT05.0045

Figure 8

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG08_REGIONAL_GW_EXCEEDENCES_MANGAS_TAILING.MXD 704250

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG09_REGIONAL_WL_MINE_STOCKPILE_AREA_2006.MXD 704250



Note: Water level elevation data are for the second half of 2006 unless otherwise noted (e.g. 2/06).

Figure 9

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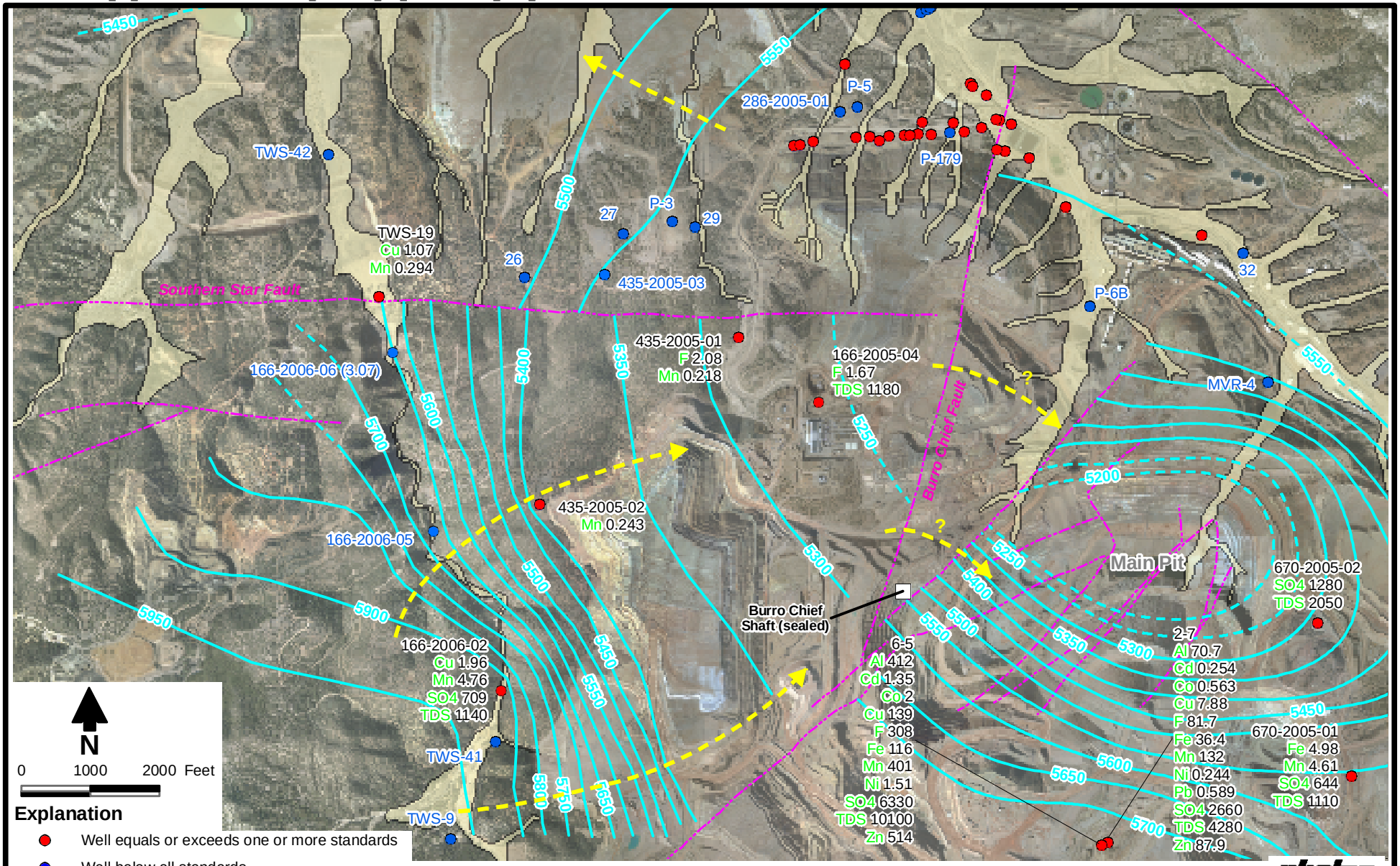
05/18/2007
JN LT05.0237

TYRONE DP-1341 CONDITION 82

Regional Groundwater Elevations for the Northwestern Mine/Stockpile Area, 2006

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG10_REGIONAL_GW_EXCEEDENCES_MINE_EAST.MXD 704250



Explanation

- Well equals or exceeds one or more standards
- Well below all standards
- Potential groundwater flow pathway
- Fault

Notes:
1. Concentration values in mg/L.
2. Exceedances based on Section 20.6.2.3103 NMAC List A, B, and C standards for most recent sample taken from 2005 to 2006.
3. Wells 6-5 and 2-7 probably contain PLS.

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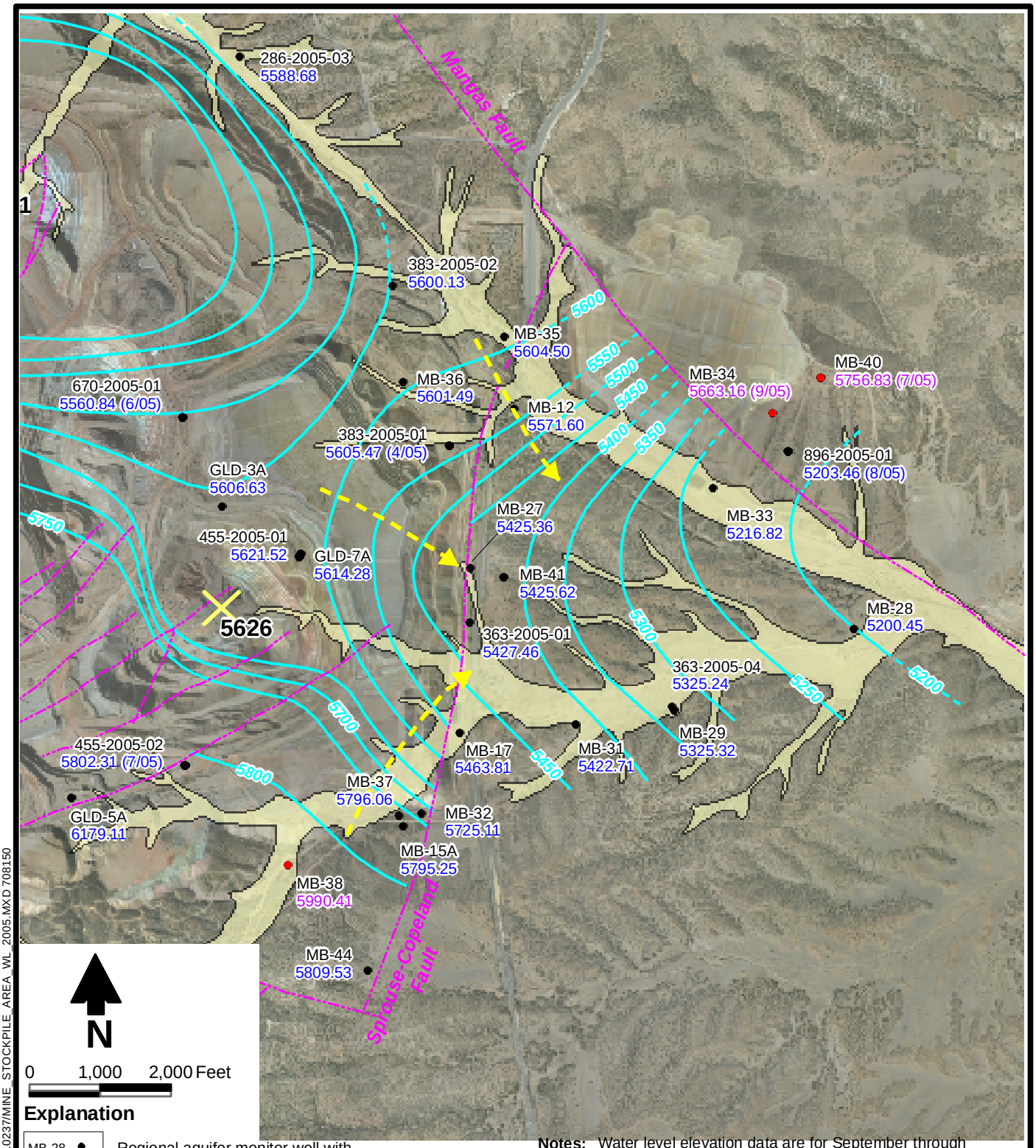
TYRONE DP-1341 CONDITION 82

Regional Groundwater Elevation and Water Quality for the Northwestern Mine/Stockpile Area, 2006

Figure 10

Daniel B. Stephens & Associates, Inc.
05/22/2007 JN LT05.0237



Explanation

- MB-28 5200.45 — Regional aquifer monitor well with water level elevation (ft msl)
- MB-34 5663.16 — Perched zone monitor well previously designated as regional
- Alluvium
- Potential groundwater flow pathway
- Water level elevation contour (ft msl), dashed where inferred
- 5625.57 — Pit lake elevation (ft msl)
- Fault

Notes: Water level elevation data are for September through November 2005 unless otherwise noted.

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/MINE_STOCKPILE_AREA_WL_2005.MXD 708150

TYRONE DP-1341 CONDITION 82

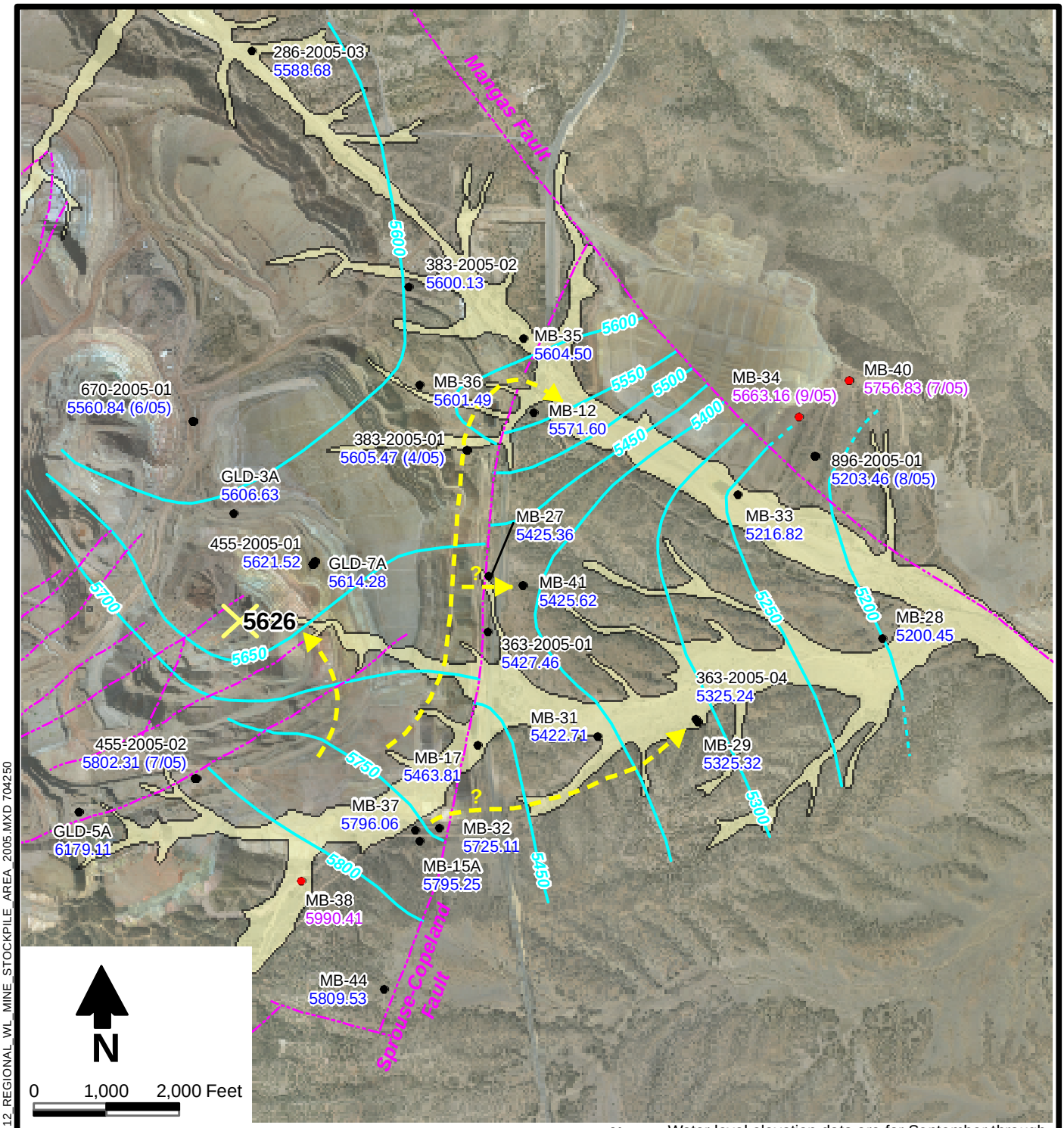
Conceptual East Side Groundwater Flow Paths - Alternative 1

Daniel B. Stephens & Associates, Inc.

07/30/2007

JN LT04.0008

Figure 11



Explanation

- MB-28 5200.45 — Regional aquifer monitor well with water level elevation (ft msl)
- MB-34 5663.16 — Perched zone monitor well previously designated as regional
- Alluvium
- Potential groundwater flow pathway
- 5626 — Pit lake elevation (ft msl)
- Water level elevation contour (ft msl), dashed where inferred
- Fault

Notes: Water level elevation data are for September through November 2005 unless otherwise noted.

TYRONE DP-1341 CONDITION 82

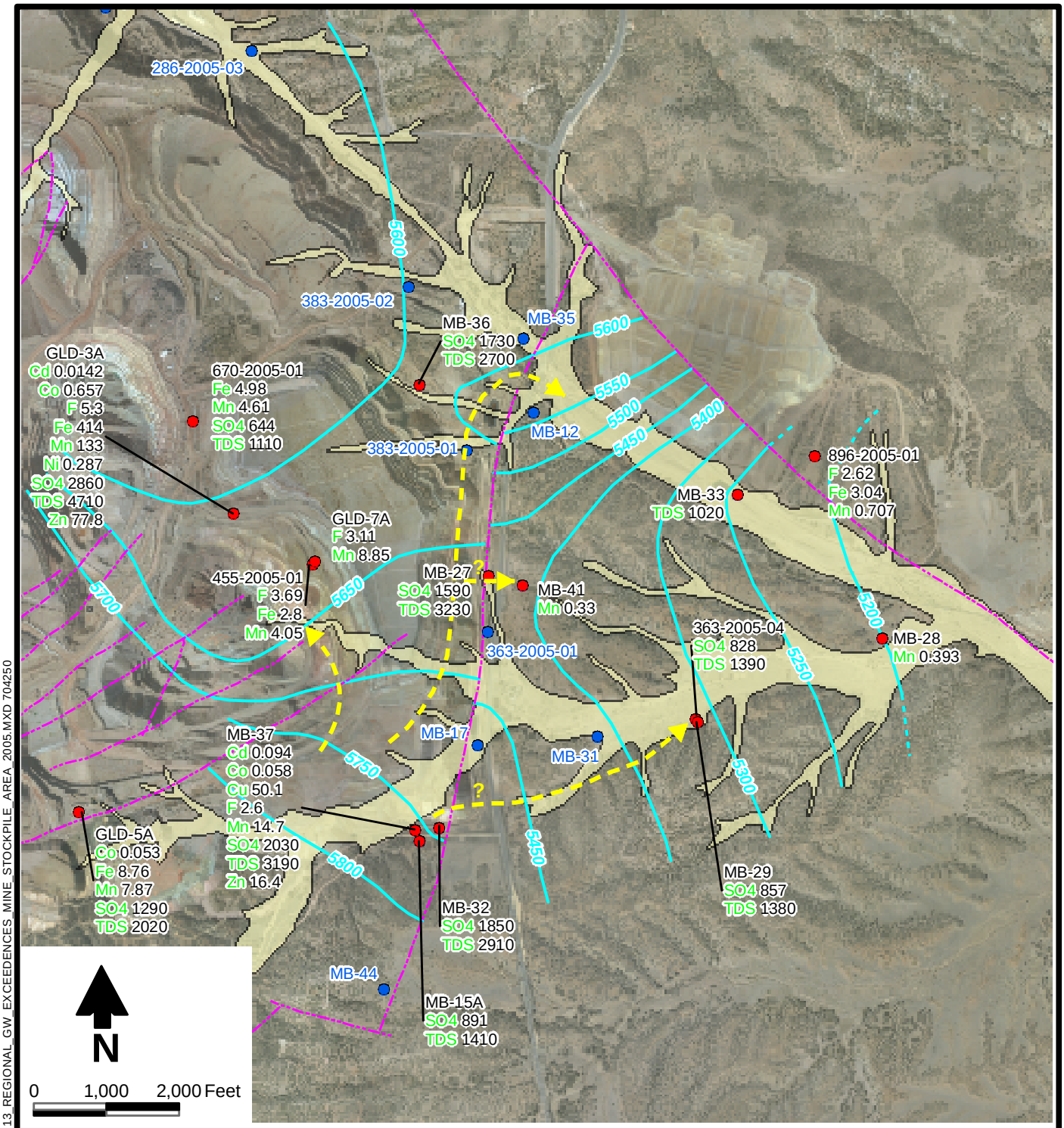
Conceptual East Side Groundwater Flow Paths - Alternative 2

Daniel B. Stephens & Associates, Inc.

07/27/2007 JN LT05.0237

Figure 12

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG12_REGIONAL_WL_MINE_STOCKPILE_AREA_2005.MXD 704250



Explanation

- Well equals or exceeds one or more standards
- Well below all standards
- Water level elevation contour (ft msl), dashed where inferred
- Fault
- Potential groundwater flow pathway

Notes:
1. Concentration values in mg/L
2. Exceedances based on Section 20.6.2.3103 NMAC List A, B, and C standards for most recent sample taken from 2005 to 2006.

S:/PROJECTS/PDTI_DB_GIS/GIS/MXDS/LT05.0237/FIG13_REGIONAL_GW_EXCEEDENCES_MINE_STOCKPILE_AREA_2005.MXD 704250

TYRONE DP-1341 CONDITION 82

Conceptual East Side Groundwater Flow Paths and Water Quality - Alternative 2

Daniel B. Stephens & Associates, Inc.

07/27/2007 JN LT05.0237

Figure 13

Tables

Table 1. Monitor Well and Soil Boring Completion Information
Page 1 of 2

Well	Groundwater Designation	Completion Date	Survey Data [a]			Screen Interval (ft bgs)		Total Depth (ft btoc)	Initial DTW [b] (ft btoc)	Screened Rock Unit
			Northing (feet)	Easting (feet)	Top of Casing Elevation (ft msl)	Top	Bottom			
27-2005-01	Regional	6/02/2005	22643.101	7236.901	5654.065	186.5	216.6	222.00	195.03	Gila Conglomerate
27-2005-02	Regional	7/06/2005	24666.006	–2026.549	5584.508	174.0	204.0	211.85	180.10	Gila Conglomerate
27-2005-03	Regional	6/06/2005	37219.849	2607.433	5599.978	220.6	250.8	258.30	227.25	Precambrian Burro Mountain Granite
27-2005-04	Regional	6/09/2005	41570.100	–928.779	5564.426	315.4	344.8	352.30	308.25	Gila Conglomerate
27-2005-05	Regional	6/22/2005	45242.871	–5021.886	5388.129	269.5	299.6	307.40	148.60	Gila Conglomerate
27-2005-06	Regional	6/28/2005	39758.090	–5036.531	5380.494	110.0	140.0	146.84	116.65	Gila Conglomerate
166-2005-04	Regional	8/12/2005	16443.680	7648.220	6095.610	862.8	892.2	899.70	821.91	Tertiary Quartz Monzonite
166-2006-01	Perched	6/17/2006	6178.278	2276.146	6162.255	6.0	16.0	24.20	Dry	Quaternary Alluvium
166-2006-02	Regional	6/20/2006	12260.467	3048.210	5938.727	50.1	80.1	88.60	7.96	Precambrian Burro Mountain Granite
166-2006-03	Perched	6/21/2006	12200.159	3030.266	5944.668	4.0	9.0	15.00	3.84	Quaternary Alluvium
166-2006-05	Regional	7/1/2006	14572.106	2068.650	5843.002	159.0	189.0	198.10	175.50	Precambrian Burro Mountain Granite
166-2006-06	Regional	6/15/2006	17161.598	1472.154	5676.857	29.3	59.3	67.50	28.88	Precambrian Burro Mountain Granite
286-2005-01	Regional	5/26/2005	20651.362	7953.944	5755.995	176.8	207.0	214.60	184.96	Gila Conglomerate
286-2005-02	Regional	6/01/2005	21338.257	8026.800	5683.105	104.6	134.8	142.42	112.40	Gila Conglomerate
286-2005-03	Regional	5/26/2005	16128.785	16170.519	5893.424	307.4	336.8	344.60	304.03	Gila Conglomerate
363-2005-01	Regional	4/21/2005	8122.534	19424.504	5965.599	555.3	584.7	592.30	537.15	Tertiary Quartz Monzonite
363-2005-02	Regional	6/16/2005	6443.260	29562.007	5731.300	582.2	611.6	619.40	589.01	Gila Conglomerate
363-2005-03	Regional	6/21/2005	6821.130	30095.706	5744.738	575.9	605.3	613.30	589.16	Gila Conglomerate
363-2005-04	Regional	7/01/2005	6929.303	22282.653	5884.415	551.6	581.0	588.10	558.15	Gila Conglomerate

[a] Northing and easting locations provided in mine coordinates

[b] Depth to water (DTW) measured immediately prior to well development

ft msl = Feet above mean sea level
ft bgs = Feet below ground surface
ft btoc = Feet below top of casing
NA = Not available
--- = Not applicable

Table 1. Monitor Well and Soil Boring Completion Information
Page 2 of 2

Well	Groundwater Designation	Completion Date	Survey Data [a]			Screen Interval (ft bgs)		Total Depth (ft btoc)	Initial DTW [b] (ft btoc)	Screened Rock Unit
			Northing (feet)	Easting (feet)	Top of Casing Elevation (ft msl)	Top	Bottom			
363-2005-B1	NA	8/19/2005	NA	NA	---	Boring only		28.0	---	---
363-2005-B2	NA	8/19/2005	NA	NA	---	Boring only		86.0	---	---
383-2005-01	Regional	4/12/2005	10624.089	19134.098	5985.939	373.0	403.0	409.95	380.47	Tertiary Quartz Monzonite
383-2005-02	Regional	4/19/2005	12879.858	18331.017	6022.561	430.3	460.0	467.75	421.71	Tertiary Quartz Monzonite
435-2005-01	Regional	5/18/2005	17375.250	6491.350	5921.800	666.0	695.4	703.00	640.12	Tertiary Quartz Monzonite
435-2005-02	Regional	5/23/2005	14955.536	3602.605	6237.318	865.4	894.8	902.40	848.20	Precambrian Burro Mountain Granite
435-2005-03	Regional	5/04/2005	18288.594	4551.144	5834.666	370.0	399.3	406.55	281.00	Precambrian Burro Mountain Granite
455-2005-01	Regional	4/17/2005	9057.934	17010.420	6205.016	674.0	703.3	709.40	582.80	Tertiary Quartz Monzonite
455-2005-02	Regional	6/05/2005	6101.426	15391.775	6261.675	449.9	479.3	486.50	459.37	Tertiary Quartz Monzonite
670-2005-01	Regional	5/04/2005	11022.603	15365.054	6206.293	717.6	756.8	764.00	645.45	Tertiary Quartz Monzonite
670-2005-02	Perched	4/03/2005	13241.686	14872.283	6154.101	360.0	389.4	396.40	351.31	Tertiary Quartz Monzonite
896-2005-01	Regional	7/23/2005	10543.170	23922.410	5991.210	858.4	888.4	896.50	787.75	Tertiary Quartz Monzonite

[a] Northing and easting locations provided in mine coordinates

[b] Depth to water (DTW) measured immediately prior to well development

ft msl = Feet above mean sea level
ft bgs = Feet below ground surface
ft btoc = Feet below top of casing
NA = Not available
--- = Not applicable

Table 2. Field Data for Monitor Wells Installed During 2005 and 2006
Page 1 of 6

Well	Sample Date	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)	pH (s.u.)	Electrical Conductivity (µmhos/cm)		Water Temperature (°C)
					Corrected (at 25°C)	Field (µmhos/cm)	
27-2005-01	12/16/2005	196.40	5,457.66	7.60	362	311	17.6
27-2005-01	1/19/2006	196.40	5,457.66	7.69	364	308	17.0
27-2005-01	2/15/2006	196.50	5,457.56	7.60	364	312	17.5
27-2005-01	4/19/2006	196.80	5,457.26	7.46	363	318	18.5
27-2005-01	7/10/2006	197.10	5,456.96	7.30	371	324	18.4
27-2005-01	10/25/2006	197.50	5,456.56	7.36	380	335	18.8
27-2005-01	1/30/2007	187.90	5,466.16	7.37	383	333	18.2
27-2005-01	4/17/07	198.20	5,455.86	7.33	387	331	17.4
27-2005-02	1/6/2006	187.00	5,397.51	7.05	579	477	15.8
27-2005-02	2/2/2006	180.70	5,403.81	7.28	541	492	20.3
27-2005-02	2/16/2006	180.90	5,403.61	7.51	539	489	20.1
27-2005-02	4/13/2006	181.50	5,403.01	7.37	543	491	20.0
27-2005-02	7/10/2006	181.70	5,402.81	7.47	552	494	19.5
27-2005-02	10/25/2006	182.00	5,402.51	7.40	548	494	19.8
27-2005-02	1/25/2007	181.15	5,403.36	7.45	534	480	19.7
27-2005-02	4/17/07	180.60	5,403.91	7.31	540	488	20.0
27-2005-03	12/27/2005	Pump not installed yet					
27-2005-03	1/26/2006	Pump not installed yet					
27-2005-03	2/28/2006	Pump not installed yet					
27-2005-03	4/21/2006	Pump not installed yet					
27-2005-03	7/25/2006	Inaccessible due to reclamation					
27-2005-03	10/25/2006	Inaccessible due to reclamation					
27-2005-03	1/30/2007	Inaccessible due to reclamation					
27-2005-03	4/18/2007	Inaccessible due to reclamation					
27-2005-04	12/27/2005	Pump not installed yet					
27-2005-04	1/26/2006	Pump not installed yet					
27-2005-04	2/28/2006	Pump not installed yet					
27-2005-04	4/21/2006	Pump not installed yet					
27-2005-04	7/13/2006	309.10	5,255.33	7.46	442	448	25.7
27-2005-04	10/25/2006	308.50	5,255.93	7.56	430	422	24.0
27-2005-04	1/25/2007	309.00	5,255.43	7.47	440	424	23.1
27-2005-04	4/18/2007	Pump burned out					
27-2005-05	12/27/2005	Pump not installed yet					

ft btoc = Feet below top of casing
ft msl = Feet above mean sea level
s.u. = Standard units
µmhos/cm = Micromhos per centimeters
--- = Not measured

Table 2. Field Data for Monitor Wells Installed During 2005 and 2006
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Well	Sample Date	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)	pH (s.u.)	Electrical Conductivity (µmhos/cm)		Water Temperature (°C)
					Corrected (at 25°C)	Field (µmhos/cm)	
27-2005-05	1/26/2006	Pump not installed yet					
27-2005-05	2/28/2006	Pump not installed yet					
27-2005-05	4/21/2006	Pump not installed yet					
27-2005-05	7/13/2006	149.80	5,238.33	7.43	9,314	8,567	20.8
27-2005-05	10/25/2006	150.20	5,237.93	7.55	623	574	20.9
27-2005-05	1/25/2007	150.50	5,237.63	7.34	606	548	20.0
27-2005-05	4/18/2007	150.80	5,237.33	7.39	609	581	22.6
27-2005-06	12/16/2005	116.80	5,263.69	7.36	1,536	1,354	18.8
27-2005-06	1/18/2006	117.20	5,263.29	7.36	1,508	1,361	19.9
27-2005-06	2/15/2006	117.15	5,263.34	7.39	1,547	1,367	18.9
27-2005-06	4/17/2006	117.50	5,262.99	7.25	1,531	1,388	20.1
27-2005-06	7/13/2006	117.80	5,262.69	7.41	1,531	1,423	21.3
27-2005-06	10/24/2006	118.10	5,262.39	7.30	1,555	1,389	19.4
27-2005-06	1/25/2007	118.60	5,261.89	7.21	1,586	1,398	18.8
27-2005-06	4/18/2007	118.65	5,261.84	7.16	1,572	1,431	20.3
166-2005-04	3/21/2006	824.55	5,271.06	6.73	1,510	1,484	24.1
166-2005-04	6/12/2006	832.00	5,263.61	6.77	1,472	1,452	24.3
166-2005-04	9/22/2006	834.70	5,260.91	6.76	1,495	1,475	24.3
166-2005-04	12/26/2006	833.10	5,262.51	6.69	1,508	1,485	24.2
166-2005-04	3/21/2007	819.62	5,275.99	6.12	1,552	1,522	24.0
166-2006-01	9/6/2006	9.50	6,152.76	6.39	261	225	17.8
166-2006-01	12/12/2006	14.40	6,147.86	6.58	254	194	12.7
166-2006-01	3/13/2007	11.10	6,151.16	6.95	196	137	9.20
166-2006-02	9/7/2006	7.40	5,931.33	6.02	1,483	1,290	18.2
166-2006-02	12/14/2006	7.40	5,931.33	5.65	1,369	1,034	12.2
166-2006-02	3/20/2007	7.30	5,931.43	5.50	1,306	1,007	13.0
166-2006-03	9/7/2006	3.80	5,940.87	3.93	1,503	1,299	17.9
166-2006-03	12/14/2006	3.75	5,940.92	4.50	842	591	9.40
166-2006-03	3/20/2007	3.40	5,941.27	4.12	748	562	12.0
166-2006-05	9/28/2006	170.45	5,672.55	6.78	783	690	18.8
166-2006-05	12/14/2006	170.50	5,672.50	6.76	770	670	18.2
166-2006-05	3/20/2007	170.45	5,672.55	6.49	761	690	20.1
166-2006-06	9/19/2006	21.35	5,655.51	6.94	722	621	17.7

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--- = Not measured

Table 2. Field Data for Monitor Wells Installed During 2005 and 2006
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Well	Sample Date	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)	pH (s.u.)	Electrical Conductivity (µmhos/cm)		Water Temperature (°C)
					Corrected (at 25°C)	Field (µmhos/cm)	
166-2006-06	12/13/2006	25.30	5,651.56	7.09	655	525	14.6
166-2006-06	3/21/2007	26.30	5,650.56	6.79	691	525	12.4
286-2005-01	12/17/2005	185.40	5,570.60	7.09	458	386	16.8
286-2005-01	2/13/2006	185.60	5,570.40	7.49	449	381	17.1
286-2005-01	4/10/2006	186.10	5,569.90	6.84	474	409	17.8
286-2005-01	6/13/2006	186.50	5,569.50	7.16	478	415	18.1
286-2005-01	9/22/2006	185.60	5,570.40	6.99	512	440	17.6
286-2005-01	12/5/2006	185.10	5,570.90	7.07	597	507	17.1
286-2005-01	3/27/2007	185.45	5,570.54	6.78	646	558	17.9
286-2005-02	12/17/2005	113.30	5,569.80	6.63	2,398	2,009	16.5
286-2005-02	2/13/2006	113.50	5,569.60	6.74	2,412	2,030	16.7
286-2005-02	4/10/2006	113.90	5,569.20	6.34	2,297	1,981	16.6
286-2005-02	6/13/2006	114.30	5,568.80	6.64	2,395	2,029	17.0
286-2005-02	9/22/2006	113.45	5,569.66	6.57	2,178	1,862	17.4
286-2005-02	12/5/2006	112.05	5,571.05	6.44	2,552	2,191	17.6
286-2005-02	3/27/2007	113.00	5,570.10	6.29	2,665	2,304	17.9
286-2005-03	12/20/2005	Pump not installed yet					
286-2005-03	2/28/2006	Pump not installed yet					
286-2005-03	4/10/2006	305.00	5,588.42	7.15	438	378	18.2
286-2005-03	6/13/2006	310.90	5,582.52	7.48	455	416	20.5
286-2005-03	9/22/2006	305.20	5,588.22	7.39	458	412	19.7
286-2005-03	12/5/2006	305.70	5,587.72	7.26	476	436	20.6
286-2005-03	3/27/2007	306.20	5,587.22	7.26	485	442	20.4
363-2005-01	4/10/2006	543.02	5,422.58	6.39	247	247	25.0
363-2005-01	7/5/2006	537.15	5,428.45	7.25	245	249	25.8
363-2005-01	10/4/2006	542.21	5,423.39	6.33	245	249	25.8
363-2005-01	1/18/2007	542.40	5,421.86	6.29	243	246	25.7
363-2005-01	4/10/2007	542.50	5,421.76	5.90	249	252	25.6
363-2005-02	4/4/2006	591.15	5,158.16	7.04	798	771	23.2
363-2005-02	7/6/2006	592.18	5,157.13	6.93	768	750	23.8
363-2005-02	10/3/2006	589.16	5,160.15	6.92	795	781	24.1
363-2005-02	1/15/2007	591.80	5,157.51	7.41	818	773	22.1
363-2005-02	4/9/2007	591.48	5,157.83	6.64	820	798	23.6

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Table 2. Field Data for Monitor Wells Installed During 2005 and 2006
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Well	Sample Date	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)	pH (s.u.)	Electrical Conductivity (µmhos/cm)		Water Temperature (°C)
					Corrected (at 25°C)	Field (µmhos/cm)	
363-2005-03	10/13/2005	Inaccessible					
363-2005-03	2/2/2006	Pump not installed yet					
363-2005-03	4/4/2006	585.50	5,156.34	6.91	822	809	24.2
363-2005-03	7/3/2006	585.33	5,156.51	7.41	799	787	24.2
363-2005-03	9/29/2006	584.94	5,156.90	7.01	814	780	22.8
363-2005-03	4/11/2007	585.10	5,156.74	6.84	829	807	23.6
363-2005-04	10/13/2005	Inaccessible					
363-2005-04	2/2/2006	Pump not installed yet					
363-2005-04	4/5/2006	556.64	5,327.78	6.81	1,656	1,621	23.9
363-2005-04	7/13/2006	562.79	5,321.62	6.75	1,648	1,632	24.5
363-2005-04	10/3/2006	562.93	5,321.48	6.64	1,643	1,643	25.0
363-2005-04	1/15/2007	563.07	5,321.34	7.14	1,712	1,637	22.7
363-2005-04	4/9/2007	562.81	5,321.60	6.01	1,714	1,698	24.5
383-2005-01	10/4/2005	---	---	6.78	598	557	21.4
383-2005-01	1/13/2006	385.95	5,599.99	6.15	711	654	20.8
383-2005-01	4/6/2006	385.75	5,600.19	6.44	728	671	20.9
383-2005-01	7/3/2006	386.88	5,599.06	7.01	784	738	21.9
383-2005-01	10/17/2006	---	---	---	1,552	1,330	17.5
383-2005-01	1/24/2007	Abandoned					
383-2005-01	4/16/2007	Abandoned					
383-2005-02	4/11/2006	427.12	5,595.44	6.50	306	288	22.0
383-2005-02	7/10/2006	422.45	5,600.11	6.71	303	287	22.3
383-2005-02	10/17/2006	434.00	5,588.56	6.10	295	278	22.0
383-2005-02	1/18/2007	434.00	5,588.56	6.33	314	293	21.5
383-2005-02	4/10/2007	428.71	5,593.85	6.37	332	312	21.9
435-2005-01	4/24/2006	641.00	5,280.80	7.19	476	473	24.7
435-2005-01	7/26/2006	651.84	5,269.96	7.25	472	486	26.6
435-2005-01	10/4/2006	654.89	5,266.91	7.11	473	471	24.8
435-2005-01	1/16/2007	647.45	5,274.35	7.16	468	462	24.3
435-2005-01	4/16/2007	640.60	5,281.20	7.14	472	470	24.8
435-2005-02	4/24/2006	846.65	5,390.67	6.99	828	904	29.8
435-2005-02	7/27/2006	Pump burned out					
435-2005-02	10/4/2006	860.83	5,376.49	6.92	833	895	28.9

ft btoc = Feet below top of casing
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s.u. = Standard units
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--- = Not measured

Table 2. Field Data for Monitor Wells Installed During 2005 and 2006
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Well	Sample Date	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)	pH (s.u.)	Electrical Conductivity (µmhos/cm)		Water Temperature (°C)
					Corrected (at 25°C)	Field (µmhos/cm)	
435-2005-02	1/16/2007	853.00	5,384.32	7.00	833	900	29.2
435-2005-02	4/16/2007	853.95	5,383.37	7.11	1,498	860	2.71
435-2005-03	4/10/2006	282.80	5,551.87	7.18	463	437	22.1
435-2005-03	7/3/2006	283.20	5,551.47	7.27	458	446	23.6
435-2005-03	10/3/2006	283.60	5,551.07	7.22	468	448	22.8
435-2005-03	1/10/2007	283.55	5,551.12	7.23	464	436	21.8
435-2005-03	4/16/2007	283.80	5,550.87	7.23	462	433	21.7
455-2005-01	9/21/2005	583.90	5,621.12	6.62	626	406	6.62
455-2005-01	2/15/2006	Pump not installed yet					
455-2005-01	5/16/2006	640.00	5,565.02	6.13	426	428	25.2
455-2005-01	8/8/2006	708.30	5,496.72	6.45	414	416	25.2
455-2005-01	11/13/2006	595.03	5,609.99	5.83	424	411	23.4
455-2005-01	2/21/2007	596.62	5,608.40	5.61	448	428	22.7
455-2005-01	5/14/2007	597.80	5,607.22	5.83	416	415	24.9
455-2005-02	2/14/2006	464.40	5,797.28	6.61	1,753	1,699	23.4
455-2005-02	5/9/2006	460.00	5,801.68	6.51	1,837	1,784	23.5
455-2005-02	8/10/2006	466.71	5,794.96	6.61	1,831	1,775	23.4
455-2005-02	11/20/2006	462.51	5,799.16	6.30	1,862	1,755	22.0
455-2005-02	2/21/2007	467.83	5,793.84	6.19	1,936	1,873	23.3
455-2005-02	5/14/2007	468.58	5,793.10	6.48	1,940	1,840	22.3
670-2005-01	2/25/2006	633.13	5,573.16	5.95	1,265	1,214	22.9
670-2005-01	5/10/2006	563.90	5,642.39	6.51	1,415	1,383	23.8
670-2005-01	8/15/2006	553.96	5,652.33	6.17	1,408	1,357	23.1
670-2005-01	11/15/2006	616.40	5,589.89	5.64	1,537	1,487	23.3
670-2005-01	2/19/2007	552.00	5,654.29	6.05	1,571	1,520	23.3
670-2005-01	5/15/2007	551.78	5,654.51	6.58	1,553	1,514	23.7
670-2005-02	2/25/2006	Pump not installed yet					
670-2005-02	5/16/2006	351.00	5,803.10	6.54	2,332	2,078	19.3
670-2005-02	8/15/2006	351.80	5,802.30	6.31	2,269	2,091	20.9
670-2005-02	11/15/2006	352.00	5,802.10	6.01	2,208	2,018	20.5
670-2005-02	2/19/2007	369.63	5,784.47	6.06	2,420	2,221	20.7
670-2005-02	5/15/2007	371.26	5,782.84	6.39	2,444	2,257	21.0
896-2005-01	1/20/2006	Pump not installed yet					

ft btoc = Feet below top of casing
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µmhos/cm = Micromhos per centimeters
--- = Not measured

Table 2. Field Data for Monitor Wells Installed During 2005 and 2006
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Well	Sample Date	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)	pH (s.u.)	Electrical Conductivity (µmhos/cm)		Water Temperature (°C)
					Corrected (at 25°C)	Field (µmhos/cm)	
896-2005-01	3/21/2006	Pump not installed yet					
896-2005-01	4/21/2006	Pump not installed yet					
896-2005-01	6/27/2006	789.00	5,202.21	6.83	1,025	1,062	26.9
896-2005-01	7/15/2006	790.00	5,201.21	6.70	977	1,039	28.3
896-2005-01	9/29/2006	788.00	5,203.21	6.43	1,008	1,041	26.7
896-2005-01	1/16/2007	792.30	5,198.91	6.72	1,045	1,045	25.0
896-2005-01	4/11/2007	791.29	5,199.92	6.38	1,041	1,067	26.3

ft btoc = Feet below top of casing
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s.u. = Standard units
µmhos/cm = Micromhos per centimeters
--- = Not measured

Table 3. Water Quality in Monitor Wells Installed During 2005 and 2006

Sample Location	Sample Date	Constituent Concentration (mg/L [a])																						
		Aluminum	Arsenic	Bicarbonate	Boron	Cadmium	Calcium	Chloride	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Nitrate	pH [b]	Potassium	Selenium	Sodium	Sulfate	TDS	Zinc
27-2005-01	12/16/2005	0.043	---	152	<0.04	<0.002	57.2	10.5	---	---	0.019	0.2	<0.06	<0.0075	2.59	0.0471	0.015	---	---	7.6	1.5	---	9.48	10.3	235	0.047
	1/19/2006	0.08	---	150	<0.04	<0.002	58.7	10.7	---	---	0.02	0.34	<0.06	<0.008	2.63	0.0252	0.012	---	---	7.69	1.39	---	9.26	12.4	235	0.03
	2/15/2006	<0.03	---	149	<0.04	<0.002	59	10.2	---	---	<0.01	0.26	<0.06	<0.008	2.49	0.0042	0.013	---	---	7.6	1.39	---	9.11	12.4	223	<0.01
	4/19/2006	<0.03	---	155	<0.04	<0.002	57.8	9.93	---	---	<0.01	0.24	<0.06	<0.0075	2.45	<0.004	0.012	---	---	7.46	1.42	---	9.19	12.2	221	<0.01
	7/10/2006	<0.03	---	161	<0.04	<0.002	63.7	10.8	---	---	<0.01	0.24	<0.06	<0.0075	2.7	<0.004	0.011	---	---	7.3	1.4	---	9.81	12.3	230	<0.01
	10/25/2006	<0.08	---	155	<0.04	<0.002	62.9	13.4	---	---	<0.01	0.28	<0.06	<0.0075	3.22	0.006	0.008	---	---	7.36	1.62	---	10.1	12.6	229	<0.01
	1/30/2007	<0.08	---	156	<0.04	<0.002	57.5	13.2	---	---	<0.01	0.28	<0.06	<0.0075	3.23	<0.004	0.012	---	---	7.37	1.35	---	9.81	11.9	239	<0.01
	4/17/2007	<0.08	---	160	<0.04	<0.002	57.7	13.5	---	---	<0.01	0.246	<0.06	<0.0075	2.87	<0.004	0.01	---	---	7.33	1.17	---	8.86	12.1	236	<0.01
27-2005-02	1/21/2005	**30.7**	---	117	<0.04	**0.0449**	94.7	18.3	---	---	**16.7**	0.464	**6.42**	<0.005	24.1	**9.15**	0.0209	---	---	6.62	1.67	---	18	190	474	8.89
	2/10/2005	0.033	---	120	<0.04	<0.002	97	20.7	---	---	0.048	0.446	<0.06	<0.005	11.1	0.0277	0.0297	---	---	7.42	1.84	---	18.4	189	470	0.031
	3/9/2005	<0.03	---	121	<0.04	<0.002	96.9	21.3	---	---	<0.01	0.461	<0.06	<0.005	10.3	<0.004	0.0188	---	---	7.35	2.03	---	18.9	196	465	1.44
	4/18/2005	<0.03	---	127	<0.04	<0.002	92.8	20.7	---	---	<0.01	0.493	<0.06	<0.005	10	0.0056	0.0214	---	---	7.25	1.84	---	19.6	183	444	<0.01
	7/18/2005	<0.03	---	119	<0.04	<0.002	116	21.3	---	---	<0.01	0.463	<0.06	<0.0075	12.7	<0.004	0.0229	---	---	7.48	1.75	---	19.1	190	464	<0.01
	1/6/2006	**54**	---	146	0.04	**0.159**	88	8.35	---	---	**4.17**	0.34	**24.9**	<0.0075	30.1	**14.7**	0.0167	---	---	7.05	1.3	---	14.9	127	382	**18.5**
	2/2/2006	<0.03	---	139	<0.04	<0.002	86.6	8.5	---	---	<0.01	0.28	<0.06	<0.008	5.94	0.0046	0.017	---	---	7.28	1.46	---	17.4	117	359	0.011
	2/16/2006	<0.03	---	135	<0.04	<0.002	85.2	8.29	---	---	<0.01	0.23	<0.06	<0.008	5.74	<0.004	0.014	---	---	7.51	1.31	---	16.2	125	352	<0.01
	4/13/2006	<0.03	---	139	<0.04	<0.002	85.2	8.2	---	---	<0.01	0.3	<0.06	<0.0075	5.71	<0.004	0.015	---	---	7.37	1.22	---	16.2	123	354	<0.01
	7/10/2006	<0.03	---	140	<0.04	<0.002	89.4	8.48	---	---	<0.01	0.2	<0.06	<0.0075	5.93	<0.004	0.012	---	---	7.47	1.28	---	17.3	120	356	<0.01
	10/25/2006	<0.08	---	138	<0.04	<0.002	87.4	8.73	---	---	<0.01	0.22	<0.06	<0.0075	6.13	<0.004	0.01	---	---	7.4	1.49	---	17.5	120	353	<0.01
	1/25/2007	<0.08	---	137	<0.04	<0.002	78.2	8.05	---	---	<0.01	0.25	<0.06	<0.0075	5.23	<0.004	0.011	---	---	7.45	1.23	---	15.4	113	367	<0.01
	4/17/2007	<0.08	---	142	<0.04	<0.002	80.3	8.27	---	---	<0.01	0.15	<0.06	<0.0075	5.49	<0.004	0.012	---	---	7.31	1.2	---	15.9	114	350	<0.01
27-2005-03	11/19/2005	<0.03	<0.025	70.7	---	<0.002	17.1	6.47	<0.006	<0.006	<0.01	**1.88**	0.089	<0.0075	7.3	**0.213**	---	<0.01	---	6.37	2.12	---	9.92	11.3	152	0.146
27-2005-04	11/18/2005	<0.03	<0.025	210	---	<0.002	26.3	13.4	<0.006	<0.006	<0.01	0.91	<0.06	<0.0075	1.2	0.0136	---	<0.01	---	7.19	1.57	---	73.3	6.27	301	0.013
	7/13/2006	<0.03	---	208	0.07	<0.002	31.8	12.9	---	---	<0.01	0.73	<0.06	<0.0075	1.48	<0.004	<0.008	---	---	7.46	1.56	---	59.6	5.59	269	<0.01
	10/25/2006	<0.08	---	195	0.08	<0.002	35.8	14	---	---	<0.01	0.62	<0.06	<0.0075	1.73	0.008	<0.008	---	---	7.56	2.01	---	57.2	5.68	265	<0.01
	1/25/2007	<0.08	---	197	0.06	<0.002	31.5	13.6	---	---	<0.01	0.65	<0.06	<0.0075	1.39	<0.004	<0.008	---	---	7.47	1.53	---	54.8	5.45	268	<0.01
27-2005-05	7/13/2006	<0.03	---	214	0.09	<0.002	38.4	16.4	---	---	<0.01	**2.36**	<0.06	<0.0075	12.1	0.027	0.012	---	---	7.43	4.78	---	68.9	76.6	391	<0.01
	10/25/2006	<0.08	---	214	0.11	<0.002	39.7	16	---	---	<0.01	**2.46**	<0.06	<0.0075	12.9	0.009	0.009	---	---	7.55	4.9	---	73.9	74.7	386	<0.01
	1/25/2007	<0.08	---	203	0.09	<0.002	33.2	16.1	---	---	<0.01	**2.59**	<0.06	<0.0075	10.7	<0.004	0.011	---	---	7.34	4.44	---	66.7	71.8	389	<0.01
	4/18/2007	<0.08	---	211	0.09	<0.002	36.2	16.3	---	---	<0.01	**2.71**	<0.06	<0.0075	11.7	0.009	0.012	---	---	7.39	4.86	---	70.9	73.5	380	<0.01

Bold indicates values that exceed New Mexico Water Quality Control Commission standards (NMWQCC, 2002).
[a] Unless otherwise noted
[b] Standard units
mg/L = Milligrams per liter
--- = Not measured
TDS = Total dissolved solids

Table 3. Water Quality in Monitor Wells Installed During 2005 and 2006

Sample Location	Sample Date	Constituent Concentration (mg/L [a])																						
		Aluminum	Arsenic	Bicarbonate	Boron	Cadmium	Calcium	Chloride	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Nitrate	pH [b]	Potassium	Selenium	Sodium	Sulfate	TDS	Zinc
27-2005-06	12/16/2005	<0.03	---	105	<0.04	<0.002	251	55.2	---	---	<0.01	0.22	<0.06	<0.0075	33.2	0.021	0.0137	---	---	7.36	3.27	---	28.2	**699**	**1,200**	0.019
	1/18/2006	0.07	---	103	<0.04	<0.002	243	54.1	---	---	0.014	0.26	<0.06	<0.008	31.8	0.0248	0.011	---	---	7.36	2.94	---	25.6	**657**	**1,180**	0.025
	2/15/2006	<0.03	---	103	<0.04	<0.002	264	56.2	---	---	<0.01	0.58	0.23	<0.008	33.5	0.0083	0.011	---	---	7.39	3.14	---	28.6	**675**	**1,200**	<0.01
	4/17/2006	<0.03	---	108	<0.04	<0.002	263	53.6	---	---	<0.01	0.58	0.2	<0.0075	33.4	0.008	<0.008	---	---	7.25	3.01	---	27.7	**654**	**1,190**	<0.01
	7/13/2006	<0.03	---	108	<0.04	<0.002	261	54.7	---	---	<0.01	0.27	0.13	<0.0075	34.8	0.005	<0.008	---	---	7.41	3.22	---	28.3	**683**	**1,230**	<0.01
	10/24/2006	<0.08	---	103	0.07	0.0027	250	54.7	---	---	<0.01	0.38	0.12	<0.0075	32.4	0.005	<0.008	---	---	7.3	2.98	---	27.8	**698**	**1,190**	<0.01
	1/25/2007	<0.08	---	106	0.05	<0.002	279	51.2	---	---	<0.01	0.127	0.12	<0.0075	34.9	<0.004	<0.008	---	---	7.21	3.14	---	30.9	**638**	**1,270**	<0.01
	4/18/2007	<0.08	---	105	<0.04	<0.002	266	52.8	---	---	<0.01	0.138	0.21	<0.0075	34.6	0.005	<0.008	---	---	7.16	3.41	---	29.8	**729**	**1,290**	<0.01
166-2005-04	3/21/2006	0.08	<0.025	234	---	<0.002	233	9.37	<0.006	0.0142	<0.01	**1.7**	**1.05**	<0.008	38.5	0.151	---	0.012	---	6.73	4.2	---	53.5	596	**1,180**	0.137
	6/12/2006	<0.03	<0.025	244	---	<0.002	227	8.93	<0.006	<0.006	<0.01	**1.66**	0.19	<0.0075	36.6	0.12	---	<0.01	---	6.77	4.87	---	50.9	562	**1,120**	0.0165
	9/22/2006	<0.03	<0.025	238	---	<0.002	229	9.51	<0.006	<0.006	<0.01	1.43	0.63	<0.0075	37.5	0.05	---	<0.01	---	6.76	4.16	---	55.3	585	**1,120**	<0.01
	12/26/2006	<0.08	<0.025	239	---	<0.002	230	9.46	<0.006	0.007	0.013	**1.67**	0.83	<0.0075	38.7	0.047	---	0.013	---	6.69	4.18	---	55.2	569	**1,180**	0.06
	3/21/2007	<0.08	<0.025	237	---	<0.002	228	9.65	<0.006	0.007	0.011	**1.74**	0.88	<0.0075	37.6	0.032	---	0.017	---	6.12	4.29	---	53.7	596	**1,170**	0.016
166-2006-01	9/6/2006	0.057	<0.025	294	---	<0.002	26	5.1	<0.006	<0.006	0.05	0.28	<0.06	<0.0075	5.35	0.038	---	<0.01	---	6.39	2.2	---	12.4	41.1	199	0.018
	12/12/2006	<0.08	<0.025	85.9	---	<0.002	29.1	5.86	<0.006	<0.006	0.039	0.353	<0.06	<0.0075	6.18	<0.004	---	<0.01	---	6.58	1.5	---	13.3	24.5	172	<0.01
	3/13/2007	0.104	<0.025	60.2	---	<0.002	20.6	5.47	<0.006	<0.006	0.04	0.268	<0.06	<0.0075	4.25	0.008	---	<0.01	---	6.95	1.02	---	10.8	28	140	<0.01
166-2006-02	9/7/2006	0.089	<0.025	71.5	---	<0.002	227	13.2	<0.006	0.024	**1.31**	0.65	<0.06	<0.0075	44.9	**4.26**	---	<0.01	---	6.02	2.28	---	30.8	**755**	**1,230**	0.185
	12/14/2006	0.172	<0.025	22.4	---	0.0027	223	10.9	<0.006	0.027	**1.96**	0.78	<0.06	<0.0075	45.2	**4.76**	---	0.012	---	**5.65**	2.68	---	31.6	**709**	**1,140**	0.268
	3/20/2007	0.244	<0.025	20.1	---	<0.002	189	11	<0.006	0.025	**2.19**	0.645	<0.06	<0.0075	38.7	**4.3**	---	<0.01	---	**5.5**	2.45	---	28.9	**680**	**1,070**	0.251
166-2006-03	9/7/2006	**16.6**	<0.025	<1	---	**0.031**	129	12.1	<0.006	**0.299**	**88.2**	**4.08**	<0.06	0.0159	49.3	**11.8**	---	0.073	---	**3.93**	4.28	---	24.9	**817**	**1,340**	4.79
	12/14/2006	**6.31**	<0.025	<1	---	**0.0169**	76.7	9.97	<0.006	**0.155**	**43.5**	0.677	<0.06	<0.0075	27.4	**6.62**	---	0.032	---	**4.5**	3.03	---	19.1	408	651	2.37
	3/20/2007	4.95	<0.025	<1	---	**0.0127**	60.6	7.69	<0.006	**0.116**	**34.1**	**1.84**	<0.06	<0.0075	21.2	**5.14**	---	0.028	---	**4.12**	2.4	---	17.1	363	590	1.68
166-2006-05	9/28/2006	<0.03	<0.025	111	---	<0.002	107	10.1	<0.006	<0.006	0.019	1.12	<0.06	<0.0075	18.1	0.049	---	<0.01	---	6.78	1.65	---	26.9	259	539	0.033
	12/14/2006	<0.08	<0.025	118	---	<0.002	112	10.1	<0.006	<0.006	0.039	1.55	<0.06	<0.0075	19.5	0.023	---	<0.01	---	6.76	1.93	---	28	262	546	0.019
	3/20/2007	<0.08	<0.025	110	---	<0.002	100	9.81	<0.006	<0.006	0.038	1.21	<0.06	<0.0075	17.3	0.022	---	<0.01	---	6.49	1.77	---	25.9	264	548	0.02
166-2006-06	9/19/2006	<0.03	<0.025	119	---	<0.002	98.3	9.12	<0.006	<0.006	0.581	1.11	<0.06	<0.0075	15.2	0.157	---	<0.01	---	6.94	2.39	---	24.5	241	512	0.13
	12/13/2006	<0.08	<0.025	136	---	<0.002	96.3	8.67	<0.006	<0.006	0.486	1.38	<0.06	<0.0075	13.2	0.107	---	<0.01	---	7.09	2.32	---	24.3	177	437	0.092
	3/21/2007	<0.08	<0.025	186	---	<0.002	93.3	8.93	<0.006	<0.006	0.166	1.05	<0.06	<0.0075	12.1	0.042	---	<0.01	---	6.79	2.18	---	24.9	153	448	0.032
286-2005-01	12/17/2005	<0.03	<0.025	189	---	<0.002	66.9	11.4	<0.006	<0.006	<0.01	0.63	<0.06	<0.0075	5.66	0.0225	---	<0.01	---	7.09	2.52	---	13.1	20.6	290	0.017
	2/13/2006	<0.03	<0.025	187	---	<0.002	68.2	11.6	<0.006	<0.006	<0.01	0.69	<0.06	<0.008	5.55	0.013	0.039	<0.01	1.92	7.49	2.77	<0.04	14	20.7	268	<0.01
	6/13/2006	<0.03	<0.025	205	---	0.0031	76	11.3	<0.006	<0.006	<0.01	0.66	<0.06	<0.0075	6.32	0.01	0.035	<0.01	2.1	7.16	3.08	<0.04	15.3	22	293	<0.01

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Table 3. Water Quality in Monitor Wells Installed During 2005 and 2006

Sample Location	Sample Date	Constituent Concentration (mg/L [a])																						
		Aluminum	Arsenic	Bicarbonate	Boron	Cadmium	Calcium	Chloride	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Nitrate	pH [b]	Potassium	Selenium	Sodium	Sulfate	TDS	Zinc
286-2005-01 (cont.)	9/22/2006	<0.03	<0.025	215	---	<0.002	81.4	11.5	<0.006	<0.006	<0.01	0.54	<0.06	<0.0075	6.83	0.009	0.053	<0.01	1.93	6.99	3.14	<0.04	16	21.7	317	<0.01
	12/5/2006	<0.08	<0.025	246	---	<0.002	92.8	14	<0.006	<0.006	<0.01	0.5	<0.06	<0.0075	7.93	<0.004	0.033	<0.01	2.48	7.07	3.21	<0.04	16.4	41.7	368	<0.01
	3/27/2007	<0.08	<0.025	262	---	<0.002	99.2	14.6	<0.006	<0.006	<0.01	0.372	<0.06	<0.0075	8.36	<0.004	0.028	<0.01	2.57	6.78	3.26	<0.04	16.6	43.1	371	<0.01
286-2005-02	12/17/2005	<0.03	<0.025	518	---	<0.002	509	7.08	<0.006	<0.006	<0.01	<0.1	<0.06	<0.0075	27.5	0.0142	---	<0.01	---	6.63	5.2	---	37.4	**963**	**2,020**	<0.01
	2/13/2006	<0.03	0.029	525	---	<0.002	595	6.73	<0.006	0.0063	<0.01	<0.1	<0.06	<0.008	31.4	0.0133	0.013	<0.01	3.24	6.74	6.04	<0.04	45.3	**980**	**2,010**	<0.01
	6/13/2006	<0.03	<0.025	531	---	0.0085	542	6.72	0.0096	0.011	<0.01	<0.1	<0.06	<0.0075	29.2	0.007	<0.008	<0.01	3.4	6.64	6.56	<0.04	40.8	**948**	**1,960**	<0.01
	9/22/2006	<0.03	<0.025	458	---	<0.002	495	9.45	<0.006	<0.006	<0.01	<0.1	<0.06	<0.0075	29.1	0.011	0.022	<0.01	3.1	6.57	5.32	<0.04	36.2	**876**	**1,840**	<0.01
	12/5/2006	<0.08	<0.025	566	---	<0.002	561	6.05	<0.006	<0.006	<0.01	<0.2	<0.06	<0.0075	30.5	<0.004	<0.008	<0.01	3.27	6.44	5.97	<0.04	45.8	**1,060**	**2,180**	<0.01
	3/27/2007	<0.08	<0.025	562	---	<0.002	608	6.46	<0.006	<0.006	<0.01	<0.2	0.06	<0.0075	32.5	<0.004	<0.008	<0.01	3.24	6.29	6.31	<0.04	50.6	**1,140**	**2,300**	<0.01
286-2005-03	10/27/2005	<0.03	<0.025	151	---	<0.002	74	18.6	<0.006	<0.006	<0.01	0.24	<0.06	<0.0075	6.39	0.0072	---	<0.01	---	6.96	2.17	---	10.7	48.3	311	0.027
	6/13/2006	<0.03	<0.025	153	---	<0.002	70.8	17.6	<0.006	<0.006	<0.01	0.26	<0.06	<0.0075	6.04	<0.004	0.008	<0.01	3.4	7.48	2.05	<0.04	10.3	37.2	272	<0.01
	9/22/2006	<0.03	<0.025	148	---	<0.002	72.4	17.8	<0.006	<0.006	<0.01	0.18	<0.06	<0.0075	6.43	<0.004	0.023	<0.01	3.29	7.39	1.96	<0.04	10.7	38.4	292	<0.01
	12/5/2006	<0.08	<0.025	158	---	<0.002	70.1	17.4	<0.006	<0.006	<0.01	0.17	<0.06	<0.0075	6.08	<0.004	0.008	<0.01	3.13	7.26	2.04	<0.04	9.94	43.8	303	<0.01
	3/27/2007	<0.08	<0.025	153	---	<0.002	72.6	18	<0.006	<0.006	<0.01	0.188	<0.06	<0.0075	6.19	<0.004	0.008	<0.01	3.56	7.26	2	<0.04	10.1	47.5	282	<0.01
363-2005-01	11/17/2005	<0.03	<0.025	109	---	<0.002	29.3	7.14	<0.006	<0.006	<0.01	0.64	0.119	<0.0075	6.22	0.0564	---	<0.01	---	6.59	1.55	---	16.3	14	204	0.032
	4/10/2006	0.046	<0.025	101	---	<0.002	23.5	6.03	<0.006	<0.006	<0.01	0.4	<0.06	<0.0075	4.95	0.022	0.018	<0.01	0.58	6.39	1.15	<0.04	13.3	7.27	151	0.0236
	7/5/2006	<0.03	<0.025	109	---	<0.002	26.3	6.39	<0.006	<0.006	<0.01	0.43	<0.06	<0.0075	5.86	0.006	0.017	<0.01	0.43	7.25	1.39	<0.04	15	8.25	172	<0.01
	10/4/2006	<0.03	<0.025	105	---	<0.002	24.1	6.27	<0.006	<0.006	<0.01	0.47	<0.06	<0.0075	5.07	<0.004	0.021	<0.01	0.48	6.33	1.32	<0.04	14	9.05	169	0.025
	1/18/2007	<0.08	<0.025	106	---	<0.002	22.6	6.12	<0.006	<0.006	<0.01	0.44	<0.06	<0.0075	4.86	<0.004	0.017	<0.01	0.55	6.29	1.25	<0.04	13.4	7.81	162	<0.01
	4/10/2007	<0.08	<0.025	106	---	<0.002	29.2	6.6	<0.006	<0.006	<0.01	0.53	<0.06	<0.0075	5.61	0.005	0.026	<0.01	0.68	**5.9**	1.38	<0.04	15.6	10.2	165	<0.01
363-2005-02	10/28/2005	<0.03	<0.025	110	---	<0.002	123	7.4	<0.006	<0.006	<0.01	1.01	<0.06	<0.0075	13.8	0.0342	---	<0.01	---	6.46	2.39	---	26.8	287	582	0.034
	10/28/2005	<0.03	<0.025	107	---	<0.002	126	7.56	<0.006	<0.006	<0.01	1.07	<0.06	<0.0075	14.2	0.0215	---	<0.01	---	6.46	2.49	---	27.8	297	607	0.025
	4/4/2006	<0.03	<0.025	101	---	<0.002	111	6.83	<0.006	<0.006	<0.01	0.56	0.48	0.0081	12	**0.577**	0.029	<0.01	0.12	7.04	2.7	<0.04	23.6	268	529	<0.01
	7/6/2006	<0.03	<0.025	95.2	---	<0.002	114	6.79	<0.006	<0.006	<0.01	0.47	0.16	<0.0075	13	**0.221**	0.017	<0.01	0.21	6.93	2.66	<0.04	23.2	274	538	<0.01
	10/3/2006	<0.03	<0.025	100	---	<0.002	108	6.85	<0.006	<0.006	<0.01	0.79	<0.06	<0.0075	11.7	0.07	0.014	<0.01	0.94	6.92	2.31	<0.04	23.4	282	566	<0.01
	1/15/2007	<0.08	<0.025	99.6	---	<0.002	110	6.59	<0.006	<0.006	<0.01	0.676	0.22	<0.0075	12.3	0.1	0.015	<0.01	1.01	7.41	2.8	<0.04	26.5	293	555	<0.01
	4/9/2007	<0.08	<0.025	110	---	<0.002	126	6.59	<0.006	<0.006	<0.01	0.56	<0.06	<0.0075	14.4	0.028	0.022	0.025	1.2	6.64	2.79	<0.04	26.5	290	594	<0.01
363-2005-03	11/8/2005	<0.03	<0.025	115	---	<0.002	115	8.05	<0.006	<0.006	<0.01	1.24	0.497	<0.0075	12.9	0.0101	---	<0.01	---	6.78	2.21	---	27.7	283	580	0.059
	11/10/2005	<0.03	<0.025	117	---	<0.002	114	7.98	<0.006	<0.006	<0.01	1.22	0.331	<0.0075	12.6	0.0125	---	<0.01	---	6.83	2.19	---	26.9	284	571	0.045
	4/4/2006	<0.03	<0.025	119	---	<0.002	108	8.02	<0.006	<0.006	<0.01	1.25	<0.06	<0.0075	12.2	<0.004	---	<0.01	---	6.91	2	---	25.8	272	582	<0.01
	7/3/2006	<0.03	<0.025	128	---	<0.002	116	8.12	<0.006	<0.006	<0.01	1.23	<0.06	<0.0075	13.2	0.008	---	<0.01	---	7.41	2.16	---	28.5	269	561	<0.01

Bold indicates values that exceed New Mexico Water Quality Control Commission standards (NMWQCC, 2002).
[a] Unless otherwise noted
[b] Standard units
mg/L = Milligrams per liter
--- = Not measured
TDS = Total dissolved solids

Table 3. Water Quality in Monitor Wells Installed During 2005 and 2006

Sample Location	Sample Date	Constituent Concentration (mg/L [a])																						
		Aluminum	Arsenic	Bicarbonate	Boron	Cadmium	Calcium	Chloride	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Nitrate	pH [b]	Potassium	Selenium	Sodium	Sulfate	TDS	Zinc
363-2005-03 (cont.)	9/29/2006	<0.03	<0.025	117	---	<0.002	121	7.95	<0.006	0.008	<0.01	1.16	0.26	<0.0075	14	0.095	---	<0.01	---	7.01	2.62	---	31.7	262	572	<0.01
	4/11/2007	**11.2**	<0.025	123	---	**0.0367**	116	7.74	<0.006	**0.061**	**2.29**	1.19	0.35	0.0084	19.9	**4.29**	---	0.033	---	6.84	2.09	---	28.9	264	565	4.59
363-2005-04	11/11/2005	<0.03	<0.025	78.1	---	<0.002	266	13.4	<0.006	<0.006	<0.01	0.48	0.927	<0.0075	42.6	0.0097	---	<0.01	---	6.45	3.65	---	45.7	**795**	**1,340**	0.025
	11/14/2005	<0.03	<0.025	77.8	---	<0.002	267	13.3	<0.006	<0.006	<0.01	0.48	0.611	<0.0075	41.8	<0.004	---	<0.01	---	6.48	3.57	---	45	**794**	**1,320**	0.016
	4/5/2006	<0.03	<0.025	79	---	<0.002	274	13	<0.006	<0.006	<0.01	0.5	<0.06	<0.0075	45.3	<0.004	---	<0.01	---	6.81	3.61	---	44.3	**806**	**1,330**	<0.01
	7/13/2006	<0.03	<0.025	80.6	---	<0.002	269	12.8	<0.006	<0.006	<0.01	0.38	<0.06	<0.0075	45	0.013	---	<0.01	---	6.75	3.47	---	42.5	**830**	**1,370**	<0.01
	10/3/2006	<0.03	<0.025	78.8	---	<0.002	240	12.9	<0.006	<0.006	<0.01	0.25	<0.06	<0.0075	40.3	0.054	---	<0.01	---	6.64	3.49	---	40.8	**828**	**1,390**	<0.01
	1/15/2007	<0.08	<0.025	79.1	---	<0.002	241	15.1	<0.006	<0.006	<0.01	0.413	<0.06	<0.0075	39.1	0.027	---	<0.01	---	7.14	3.28	---	39.1	**850**	**1,370**	0.016
	4/9/2007	<0.08	<0.025	87.1	---	<0.002	257	13	<0.006	<0.006	<0.01	0.71	<0.06	<0.0075	43.7	0.053	---	0.011	---	6.01	3.61	---	41.5	**854**	**1,450**	<0.01
383-2005-01	10/4/2005	<0.03	<0.025	117	---	<0.002	75.3	16.3	<0.006	<0.006	0.019	0.27	<0.06	<0.0075	14.4	0.102	---	<0.01	---	6.78	3.28	---	25.3	155	435	0.012
	1/13/2006	<0.03	<0.025	124	---	<0.002	87.7	15.4	<0.006	<0.006	<0.01	0.24	<0.06	<0.008	16.4	0.007	---	<0.01	---	6.15	2.97	---	25.2	184	457	<0.01
	4/6/2006	<0.03	<0.025	131	---	<0.002	87.8	14.5	<0.006	<0.006	<0.01	0.23	<0.06	<0.0075	16.5	<0.004	---	<0.01	---	6.44	3.03	---	25	181	453	<0.01
	7/3/2006	<0.03	<0.025	127	---	<0.002	106	14.9	<0.006	<0.006	<0.01	0.22	<0.06	<0.0075	19.3	<0.004	---	<0.01	---	7.01	3.01	---	25.9	251	568	<0.01
383-2005-02	11/7/2005	<0.03	<0.025	125	---	<0.002	37.4	16.3	<0.006	<0.006	<0.01	0.24	0.135	<0.0075	5.74	0.0394	---	<0.01	---	6.73	2.91	---	14.7	9.47	212	0.037
	4/11/2006	<0.03	<0.025	126	---	<0.002	34.9	9.65	<0.006	<0.006	<0.01	0.32	<0.06	<0.0075	5.34	<0.004	0.014	<0.01	0.84	6.5	2.73	<0.04	14	11.5	179	<0.01
	7/10/2006	<0.03	<0.025	127	---	<0.002	37.5	9.77	<0.006	<0.006	<0.01	0.22	<0.06	<0.0075	5.75	<0.004	0.011	<0.01	0.85	6.71	2.93	<0.04	14.8	11.7	195	<0.01
	10/17/2006	<0.03	<0.025	120	---	<0.002	37.6	9.63	<0.006	<0.006	<0.01	0.3	<0.06	<0.0075	6.06	0.006	0.009	<0.01	0.82	6.1	2.94	<0.04	15.6	12.6	190	<0.01
	1/18/2007	<0.08	<0.025	125	---	<0.002	32.8	10.1	<0.006	<0.006	<0.01	0.21	<0.06	<0.0075	5.05	0.006	0.01	<0.01	<0.2	6.33	2.85	<0.04	14	11.6	207	<0.01
	4/10/2007	<0.08	<0.025	133	---	<0.002	37.4	9.92	<0.006	<0.006	<0.01	0.22	<0.06	<0.0075	5.92	0.005	0.012	<0.01	0.901	6.37	2.87	<0.04	15.2	12.1	213	<0.01
435-2005-01	4/24/2006	<0.03	<0.025	191	---	<0.002	56.7	9.98	<0.006	<0.006	<0.01	**2.33**	0.39	<0.0075	8.32	**0.384**	---	<0.01	---	7.19	2.39	---	26.4	31.7	282	<0.01
	7/26/2006	<0.03	<0.025	201	---	<0.002	53.3	10.3	<0.006	<0.006	<0.01	**2.24**	0.25	<0.0075	7.93	**0.267**	---	<0.01	---	7.25	2.53	---	25.8	31.9	272	<0.01
	10/4/2006	<0.03	<0.025	187	---	<0.002	54	9.7	<0.006	<0.006	<0.01	**2.08**	0.25	<0.0075	7.95	**0.218**	---	<0.01	---	7.11	2.26	---	27.6	30.7	290	<0.01
	1/16/2007	<0.08	<0.025	188	---	<0.002	55.5	9.79	<0.006	<0.006	<0.01	**2.38**	0.3	<0.0075	8.45	**0.203**	---	<0.01	---	7.16	2.28	---	28.1	31.8	266	<0.01
	4/16/2007	<0.08	<0.025	191	---	<0.002	54.5	9.95	<0.006	<0.006	<0.01	**2.01**	0.27	<0.0075	7.95	0.179	---	<0.01	---	7.14	2.33	---	27.8	32.9	290	0.01
435-2005-02	4/24/2006	<0.03	<0.025	142	---	<0.002	109	10.3	<0.006	<0.006	<0.01	1.29	0.07	<0.0075	17.5	0.081	---	<0.01	---	6.99	1.74	---	36.3	261	553	<0.01
	10/4/2006	<0.03	<0.025	141	---	<0.002	105	9.89	<0.006	<0.006	<0.01	1.13	<0.06	<0.0075	17.1	**0.243**	---	<0.01	---	6.92	1.86	---	36	252	546	<0.01
	1/16/2007	<0.08	<0.025	140	---	<0.002	112	9.91	<0.006	<0.006	<0.01	1.26	<0.06	<0.0075	17.8	0.046	---	<0.01	---	7	1.83	---	38	257	487	<0.01
	4/16/2007	<0.08	<0.025	144	---	<0.002	106	10.3	<0.006	<0.006	<0.01	1.08	<0.06	<0.0075	17	0.019	---	0.012	---	7.11	1.76	---	35.8	268	558	<0.01
435-2005-03	4/10/2006	<0.03	<0.025	183	---	<0.002	58.3	8.75	<0.006	<0.006	<0.01	**1.81**	<0.06	<0.0075	7.74	0.02	---	<0.01	---	7.18	2.24	---	26.4	40.7	290	<0.01
	7/3/2006	<0.03	<0.025	186	---	<0.002	58.2	8.7	<0.006	<0.006	<0.01	**1.76**	<0.06	<0.0075	7.62	0.005	---	<0.01	---	7.27	2.06	---	25.2	40.5	286	<0.01
	10/3/2006	<0.03	<0.025	179	---	<0.002	57.2	8.51	<0.006	<0.006	<0.01	1.56	<0.06	<0.0075	7.37	0.006	---	<0.01	---	7.22	2.13	---	24.7	38.9	283	<0.01

Bold indicates values that exceed New Mexico Water Quality Control Commission standards (NMWQCC, 2002).
[a] Unless otherwise noted
[b] Standard units
mg/L = Milligrams per liter
--- = Not measured
TDS = Total dissolved solids

Table 3. Water Quality in Monitor Wells Installed During 2005 and 2006

Sample Location	Sample Date	Constituent Concentration (mg/L [a])																							
		Aluminum	Arsenic	Bicarbonate	Boron	Cadmium	Calcium	Chloride	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Nitrate	pH [b]	Potassium	Selenium	Sodium	Sulfate	TDS	Zinc
435-2005-03 (cont.)	1/10/2007	<0.08	<0.025	183	---	<0.002	55.2	8.73	<0.006	<0.006	<0.01	**1.85**	<0.06	<0.0075	7.35	<0.004	---	<0.01	---	7.23	2.14	---	24.1	41.2	299	<0.01
	4/16/2007	<0.08	<0.025	182	---	<0.002	56.8	8.68	<0.006	<0.006	<0.01	1.48	<0.06	<0.0075	7.36	<0.004	---	<0.01	---	7.23	2.13	---	24.1	40.4	289	<0.01
455-2005-01	9/21/2005	3.93	<0.025	85.2	---	0.0058	46.1	6.35	<0.006	0.0378	**11.4**	**3.86**	<0.06	<0.0075	12.9	**4.7**	---	0.016	---	6.62	6.64	---	27.9	106	291	1.01
	11/16/2005	<0.03	<0.025	91.4	---	<0.002	42.6	5.7	<0.006	<0.006	<0.01	**3.57**	**14.3**	<0.0075	9.01	**3.6**	---	<0.01	---	6.29	6.52	---	25.6	57.5	278	0.593
	11/16/2005	<0.03	<0.025	95.3	---	<0.002	44.2	5.3	<0.006	0.008	<0.01	**3.45**	**15.1**	<0.0075	9.35	**4.45**	---	0.012	---	6.26	6.75	---	26.5	114	333	0.782
	5/16/2006	<0.03	<0.025	80.6	---	<0.002	42.1	5.97	<0.006	0.009	<0.01	**3.42**	**1.26**	<0.0075	8.49	**3.89**	---	<0.01	---	6.13	6.87	---	23.7	106	260	0.669
	8/8/2006	<0.03	<0.025	89.7	---	<0.002	36	5.67	<0.006	<0.006	<0.01	**3.69**	**2.8**	<0.0075	8.06	**4.05**	---	<0.01	---	6.45	6.38	---	23.9	93.4	269	<0.01
	11/13/2006	<0.08	<0.025	80.5	---	<0.002	39.7	5.65	<0.006	<0.006	<0.01	**3.57**	**2.8**	<0.0075	8.52	**3.63**	---	<0.01	---	**5.83**	6	---	23.9	95.7	268	0.027
	2/21/2007	<0.08	<0.025	91.3	---	<0.002	36.7	5.76	<0.006	<0.006	<0.01	**3.64**	**3.02**	<0.0075	8.39	**3.68**	---	0.011	---	**5.61**	6.25	---	25.1	102	278	0.016
	5/14/2007	<0.08	<0.025	75.5	---	<0.002	38.5	6.03	<0.006	0.008	<0.01	**3.95**	**2.9**	<0.0075	8.42	**3.75**	---	<0.01	---	**5.83**	6.45	---	24.6	102	255	<0.01
455-2005-02	2/14/2006	<0.03	<0.025	183	---	<0.002	314	35.2	<0.006	<0.006	0.012	1.06	<0.06	<0.008	51.6	0.0137	---	<0.01	---	6.61	4.11	---	55.5	**844**	**1,510**	0.012
	5/9/2006	<0.03	<0.025	186	---	<0.002	320	36.6	<0.006	0.008	<0.01	0.63	0.07	<0.0075	52.1	0.02	---	0.016	---	6.51	3.99	---	54.3	**863**	**1,530**	<0.01
	8/10/2006	<0.03	<0.025	188	---	<0.002	312	34.8	<0.006	<0.006	<0.01	0.43	<0.06	<0.0075	50.7	0.005	---	0.01	---	6.61	4.03	---	51.6	**842**	**1,500**	<0.01
	11/20/2006	<0.08	<0.025	182	---	0.0024	297	36.4	<0.006	<0.006	<0.01	0.71	<0.06	<0.0075	53.2	0.005	---	0.015	---	6.3	4.05	---	50.7	**874**	**1,520**	<0.01
	2/21/2007	<0.08	<0.025	184	---	<0.002	313	36.8	<0.006	<0.006	<0.01	0.94	0.14	<0.0075	53.1	0.134	---	0.014	---	6.19	3.77	---	51	**859**	**1,570**	0.089
	5/14/2007	<0.08	<0.025	175	---	<0.002	326	35.1	0.007	<0.006	<0.01	0.58	0.07	<0.0075	53.8	0.018	---	0.027	---	6.48	3.98	---	51.7	**877**	**1,540**	<0.01
670-2005-01	2/25/2006	<0.03	<0.025	66.2	---	<0.002	120	15.2	<0.006	<0.006	<0.01	0.58	**4.53**	<0.008	31.2	**4.08**	---	<0.01	---	**5.95**	13.2	---	92.7	582	**1,000**	0.053
	5/10/2006	<0.03	<0.025	85.2	---	<0.002	171	16.5	<0.006	0.012	<0.01	0.62	**2.88**	<0.0075	44.3	**5.1**	---	<0.01	---	6.51	9.97	---	71.7	**663**	**1,110**	0.221
	8/15/2006	<0.03	<0.025	62	---	<0.002	180	16.1	<0.006	<0.006	<0.01	0.61	**4.98**	<0.0075	45.1	**4.61**	---	<0.01	---	6.17	6.23	---	52.2	**644**	**1,110**	<0.01
	11/15/2006	<0.08	<0.025	58.6	---	<0.002	197	16.4	<0.006	<0.006	<0.01	0.35	**5.31**	<0.0075	51.3	**4.31**	---	<0.01	---	**5.64**	7.81	---	59.1	**728**	**1,250**	<0.01
	2/19/2007	<0.08	<0.025	61	---	<0.002	198	18.2	<0.006	<0.006	<0.01	0.7	**4.55**	<0.0075	53.7	**4.03**	---	0.01	---	6.05	7.33	---	58.2	**758**	**1,250**	<0.01
	5/15/2007	<0.08	<0.025	50.5	---	<0.002	213	18	<0.006	<0.006	<0.01	0.26	**4.58**	<0.0075	57.2	**4.27**	---	<0.01	---	6.58	6.2	---	53.2	**794**	**1,290**	<0.01
670-2005-02	5/16/2006	<0.03	<0.025	85.4	---	<0.002	448	14.5	<0.006	<0.006	<0.01	<0.2	<0.06	<0.0075	75.2	0.103	---	<0.01	---	6.54	4.17	---	46.5	**1,330**	**1,990**	0.0811
	8/15/2006	<0.03	<0.025	89.5	---	<0.002	393	13.9	<0.006	<0.006	<0.01	0.21	<0.06	<0.0075	69	0.095	---	<0.01	---	6.31	3.27	---	42.4	**1,280**	**2,050**	0.0855
	11/15/2006	<0.08	<0.025	89.8	---	<0.002	391	14.1	<0.006	<0.006	<0.01	<0.2	<0.06	<0.0075	70.6	<0.004	---	<0.01	---	6.01	3.35	---	47.8	**1,200**	**2,010**	0.074
	2/19/2007	<0.08	<0.025	94.5	---	<0.002	407	19.2	<0.006	<0.006	<0.01	<0.5	<0.06	<0.0075	75.1	<0.004	---	0.019	---	6.06	3.28	---	48.6	**1,270**	**1,980**	0.07
	5/15/2007	<0.08	<0.025	94.8	---	<0.002	430	15.1	<0.006	<0.006	<0.01	<0.2	0.31	0.0084	81.2	0.223	---	0.046	---	6.39	4.14	---	51.2	**1,330**	**2,060**	0.076
896-2005-01	6/27/2006	<0.03	<0.025	171	---	<0.002	128	5.44	<0.006	<0.006	<0.01	**2.96**	**4.83**	<0.0075	19.4	**1.1**	0.034	<0.01	<0.02	6.83	5.71	<0.04	53.1	347	696	0.0173
	7/15/2006	0.103	<0.025	170	---	<0.002	133	5.26	<0.006	<0.006	<0.01	**2.74**	**5.2**	<0.0075	19.9	**0.918**	---	<0.01	---	6.7	5.96	---	53.7	327	668	0.0409
	9/29/2006	<0.03	<0.025	167	---	<0.002	128	4.92	<0.006	<0.006	<0.01	**2.62**	**3.04**	<0.0075	19	**0.707**	0.029	<0.01	<0.02	6.43	5.58	<0.04	51.1	330	689	<0.01
	1/16/2007	<0.08	<0.025	186	---	<0.002	124	4.22	<0.006	<0.006	<0.01	**2.6**	**2.57**	<0.0075	18.5	**0.637**	0.024	<0.01	0.035	6.72	5.26	<0.04	49.9	355	704	<0.01
	4/11/2007	<0.08	<0.025	176	---	<0.002	136	4.4	<0.006	<0.006	<0.01	**2.95**	**2.43**	<0.0075	19.8	**0.586**	0.019	<0.01	<0.02	6.38	5.6	<0.04	50.1	361	744	<0.01

Bold indicates values that exceed New Mexico Water Quality Control Commission standards (NMWQCC, 2002).
[a] Unless otherwise noted
[b] Standard units
mg/L = Milligrams per liter
--- = Not measured
TDS = Total dissolved solids

Table 4. Summary of Aquifer Tests

Pumping Well	Single-Well or Multi-Well Test	Pumping Duration (hours)	Pumping Well Completion			Observation Well	Observation Well Completion			Comments
			Total Depth (feet)	Water Column (feet)	Groundwater Designation		Total Depth (feet)	Water Column (feet)	Well Type	
DP-1341 Condition 82 Requirement										
166-2006-02	Multi-well	---	88.60	80.64	Regional	166-2006-03	15.00	11.16	Perched	No test due to small well yield
286-2005-03	Single-well	4.3	344.60	40.57	Regional	---	---	---	---	Completed October 27, 2005
363-2005-01	Single-well	4.0	592.30	55.15	Regional	MB-27	620.00	52.00	Regional	Completed November 17,2005; unable to measure water level in MB-27 (obstruction)
383-2005-02	Single-well	4.1	467.75	46.04	Regional	---	---	---	---	Completed on November 7, 2005
670-2005-01	Single-well	---	764.00	118.55	Regional	---	---	---	---	No test due to small well capacity (~1 gpm)
Additional Testing (Not Required)										
27-2005-03	Single-well	4.0	258.30	31.05	Regional	---	---	---	---	Completed November 19, 2005
27-2005-04	Single-well	4.0	352.30	44.05	Regional	---	---	---	---	Completed November 18, 2005
166-2006-03	Single-well	---	15.00	11.16	Perched	TWS-28	---	---	Perched	No test; cancelled with 166-2006-02
363-2005-02	Multi-well	9.1	619.40	30.39	Regional	MB-42	630.00	37.70	Regional	Completed October 28, 2005
363-2005-03	Multi-well	19.6	613.30	24.14	Regional	MB-42	630.00	37.70	Regional	Completed November 8 and 9, 2005
363-2005-04	Multi-well	72.5	588.00	29.85	Regional	MB-29	588.00	33.90	Regional	Completed November 11 through 15, 2005
455-2005-01	Multi-well	8.0	709.40	126.60	Regional	GLD-7A	651.90	67.10	Regional	Completed November 16, 2005

--- = Not applicable gpm = Gallons per minute

Table 5. Aquifer Test Results
Page 1 of 2

Pumping Well	Observation Well	Lithology of Screened Interval	Transmissivity (ft^2/day)	Thickness (feet)	Hydraulic Conductivity (feet/day)	Storage	Specific Yield	Analysis Method
Test 27-2005-03	27-2005-03	pCg	11	25.3	0.43	---	---	Cooper-Jacob analysis of recovery data
			23	25.3	0.91	0.080	---	Theis analysis of drawdown and recovery data
Test 27-2005-04	27-2005-04	QTg	29	29.4	1.0	---	---	Cooper-Jacob analysis of recovery data
			172	29.4	5.8	---	---	Cooper-Jacob analysis of recovery data
			123	29.4	4.2	0.013	---	Theis analysis of drawdown and recovery data
Test 286-2005-03	286-2005-03	QTg	651	29.4	22.1	---	---	Cooper-Jacob analysis of recovery data
			684	29.4	23.3	0.014	---	Theis analysis of drawdown and recovery data
Test 363-2005-01	363-2005-01	Tqm	199	29.4	6.8	---	---	Cooper-Jacob analysis of recovery data
			392	29.4	13.3	7.1×10^{-6}	---	Theis analysis of drawdown and recovery data
Test 363-2005-02	363-2005-02	QTg	36	24.5	1.5	---	---	Cooper-Jacob analysis of recovery data
			612	24.5	25.0	---	---	Cooper-Jacob analysis of recovery data
			180	24.5	7.3	---	0.073	Neuman (1972) analysis of drawdown and recovery data

pCg = Precambrian Burro Mountain granite
QTg = Gila conglomerate
Tqm = Tertiary quartz monzonite
--- = Value not determined

Table 5. Aquifer Test Results
Page 2 of 2

Pumping Well	Observation Well	Lithology of Screened Interval	Transmissivity (ft^2/day)	Thickness (feet)	Hydraulic Conductivity (feet/day)	Storage	Specific Yield	Analysis Method
Test 363-2005-02 (cont.)	363-2005-02	QTg	169	24.5	6.9	0.022	---	Theis analysis of drawdown and recovery data
	MB-42	QTg	No influence due to pumping					
Test 363-2005-03	363-2005-03	QTg	8,750	25.8	339.1	---	---	Cooper-Jacob analysis of recovery data
			2,039	25.8	79.0	9.5×10^{-10}	---	Theis analysis of drawdown and recovery data
	MB-42	QTg	No influence due to pumping					
Test 363-2005-04	MB-29	QTg	157	40	3.9	---	---	Cooper-Jacob analysis of recovery data
			74	40	1.9	0.026	---	Theis analysis drawdown and recovery data
Test 383-2005-02	383-2005-02	Tqm	175	29.4	5.9	---	---	Cooper-Jacob analysis of recovery data
			605	29.4	20.6	---	---	Cooper-Jacob analysis of recovery data
			336	29.4	11.4	0.035	---	Theis analysis of drawdown and recovery data
Test 455-2005-01	455-2005-01	Tqm	0.59	29.4	0.020	---	---	Cooper-Jacob analysis of recovery data
			0.93	29.4	0.032	0.030	---	Theis analysis of drawdown and recovery data
	GLD-7A	Tqm	No influence due to pumping					

pCg = Precambrian Burro Mountain granite
QTg = Gila conglomerate
Tqm = Tertiary quartz monzonite
--- = Value not determined

Table 6. SPLP Results from Oak Grove Boring 363-2005-B1

Constituent	Concentration (mg/L [a])						
	5.0–6.5 ft bgs	10.5–11.5 ft bgs	15.0–16.5 ft bgs	20.0–21.5 ft bgs	25.0–25.8 ft bgs	25.8–26.5 ft bgs	Average [b]
Alkalinity (as $CaCO_3$)	29.1	2.5	1.2	<1.0	<1.0	<1.0	5.7
CO_3 (as $CaCO_3$)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.5
HCO_3 (as $CaCO_3$)	29.1	2.5	1.2	<1.0	<1.0	<1.0	5.7
pH (s.u.)	6.38	**5.34**	**5.72**	**4.90**	**4.29**	**4.29**	**5.15**
Total dissolved solids	137	18	44	219	198	237	142
Calcium	1.07	3.17	7.08	52.1	34.5	43.1	23.5
Chloride	2.03	0.51	0.59	0.62	0.25	0.57	0.76
Fluoride	0.38	0.15	<0.10	0.36	0.90	0.79	0.52
Potassium	0.87	1.43	2.81	1.24	1.25	1.35	1.49
Magnesium	0.558	0.175	0.437	1.81	5.75	6.06	2.47
Sodium	13.8	2.75	2.51	1.95	2.06	1.99	4.18
Sulfate	2.38	11.7	26.2	144	127	155	77.7
Aluminum	4.11	0.069	0.042	1.11	2.03	1.94	1.55
Arsenic	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.0125
Cadmium	<0.0020	<0.0020	<0.0020	0.0034	**0.0136**	0.0128	0.0055
Cobalt	<0.0060	<0.0060	0.0073	0.0144	**0.0600**	**0.0529**	0.0234
Chromium	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.060	0.0030
Copper	0.108	<0.010	0.066	0.953	**3.02**	**2.85**	**1.17**
Iron	**3.13**	<0.060	<0.060	0.567	<0.060	<0.060	0.636
Manganese	0.0425	0.0818	**0.614**	**1.03**	**3.93**	**3.56**	**1.54**
Nickel	<0.010	<0.010	<0.010	<0.010	0.017	0.017	0.009
Lead	0.0129	<0.00750	<0.00750	<0.00750	<0.00750	<0.00750	0.0053
Zinc	0.058	<0.010	0.066	0.665	2.27	2.29	0.892

Bold indicates values that exceed New Mexico Water Quality Control Commission groundwater standards (NMWQCC, 2002).

[a] Unless otherwise noted

[b] For non-detect samples, a value of half of the detection limit was used for average calculations

mg/L = Milligrams per liter

s.u. = Standard units

ft bgs = Feet below ground surface

Table 7. SPLP Results from Oak Grove Boring 363-2005-B2

Constituent	Concentration (mg/L [a])							
	30.0–31.5 ft bgs	60.0–61.5 ft bgs	65.0–66.5 ft bgs	70.0–71.5 ft bgs	75.0–76.5 ft bgs	80.0–81.5 ft bgs	85.0–86.0 ft bgs	Average [b]
Alkalinity (as $CaCO_3$)	37.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.8
CO_3 (as $CaCO_3$)	6.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4
HCO_3 (as $CaCO_3$)	31.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.9
pH (s.u.)	8.73	**5.36**	**4.40**	**4.24**	**4.29**	**4.25**	**4.59**	**5.12**
Total dissolved solids	270	106	219	216	209	141	190	193
Calcium	2.85	18.9	37.9	39.4	39.4	22.0	31.8	27.5
Chloride	2.59	0.61	0.61	0.65	0.68	0.63	0.72	0.93
Fluoride	0.82	0.56	0.71	0.53	0.58	0.53	0.51	0.61
Potassium	2.38	1.87	1.89	1.89	2.78	2.40	2.66	2.27
Magnesium	2.49	4.69	6.85	4.62	5.10	3.96	4.14	4.55
Sodium	15.7	2.15	1.93	1.77	1.81	1.77	2.21	3.91
Sulfate	1.74	75.8	147	143	147	93.9	119	104
Aluminum	**19.3**	0.419	1.80	2.59	2.57	1.48	1.75	4.27
Arsenic	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.0125
Cadmium	<0.0020	0.0038	0.0093	0.0099	**0.0112**	0.0081	0.0085	0.0074
Cobalt	<0.0060	0.0150	**0.0548**	0.0456	**0.0680**	0.0445	0.0491	0.0400
Chromium	0.0080	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	0.0037
Copper	0.229	**1.22**	**3.33**	**3.14**	**3.37**	**2.55**	**2.59**	**2.35**
Iron	**13.3**	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	**1.93**
Manganese	0.122	**2.60**	**5.20**	**3.94**	**4.86**	**3.36**	**3.81**	**3.41**
Nickel	<0.010	0.014	0.026	0.016	0.020	0.014	0.016	0.022
Lead	0.0327	<0.00750	<0.00750	<0.00750	<0.00750	<0.00750	<0.00750	0.00789
Zinc	0.139	1.18	2.57	2.04	2.27	1.73	1.81	1.68

Bold indicates values that exceed New Mexico Water Quality Control Commission groundwater standards (NMWQCC, 2002).

[a] Unless otherwise noted

[b] For non-detect samples, a value of half of the detection limit was used for average calculations

mg/L= Milligrams per liter

s.u. = Standard units

ft bgs = Feet below ground surface

Table 8. Summary of Amended or Corrected Observation Well Information
Page 1 of 2

Well	Previous Groundwater Designation or Well Data	Revised Aquifer Designation or Well Data	Comments
EM-2	Regional well	Shallow/perched	Well log indicates well depth is 105 feet in Tqm; unknown screen interval. Operations staff note rise in fluid level with nearby leaching.
MB-10	Regional well	Shallow/perched	Well log indicates depth of 65 feet; well completed in QTg; only had water on several monitoring events. Depth to regional water at nearby well 383-2005-02 completed in Tqm is about 420 feet.
MB-13	Regional well	Shallow/perched	Reported depth of 182.7 feet in Upper Oak Grove Wash. Water level consistent with perched alluvial water. See MB-39 comments.
MB-34	Regional well	Shallow/perched	Well log indicates well depth is 360 feet, with screened interval from 300 to 360 feet in "bedrock". Historical water levels more than 400 feet higher than adjacent values across Mangas Fault. Nearby well 896-2005-01, drilled to 896 feet and screened from 858 to 888 feet in Tqm, has water levels consistent with other regional wells, such as MB-33. See MB-40 comments.
MB-38	Regional well	Shallow/perched	Well log indicates well is 149 feet deep with screened interval from 129 to 149 feet in alluvium or weathered QTg. Depth to water about 38 feet upon well completion. Adjacent regional wells (e.g., MB-15A and MB-37) about 240 feet deep with depth to water of 170 to 190 feet.
MB-39	Regional well	Recommended for plugging and abandonment; monitoring results significantly influenced by perched zone seepage	Regional well 655 feet deep completed in Tqm. The screened interval and well completion details were not found. The well very likely has a poor annular seal, as indicated by a significant rise in water levels through time until water levels stabilized and are nearly identical to those in nearby shallow/perched well MB-13. See DBS&A (2006a) for additional details.
MB-40	Regional well	Shallow/perched	Well log indicates well depth is 382 feet, with screened interval from 342 to 382 feet in "weathered" rock. Historical water levels are more than 500 feet higher than adjacent values across Mangas Fault. Nearby well 896-2005-01, drilled to 896 feet and screened from 858 to 888 feet in Tqm, has water levels consistent with other regional wells, such as MB-33. See MB-34 comments.

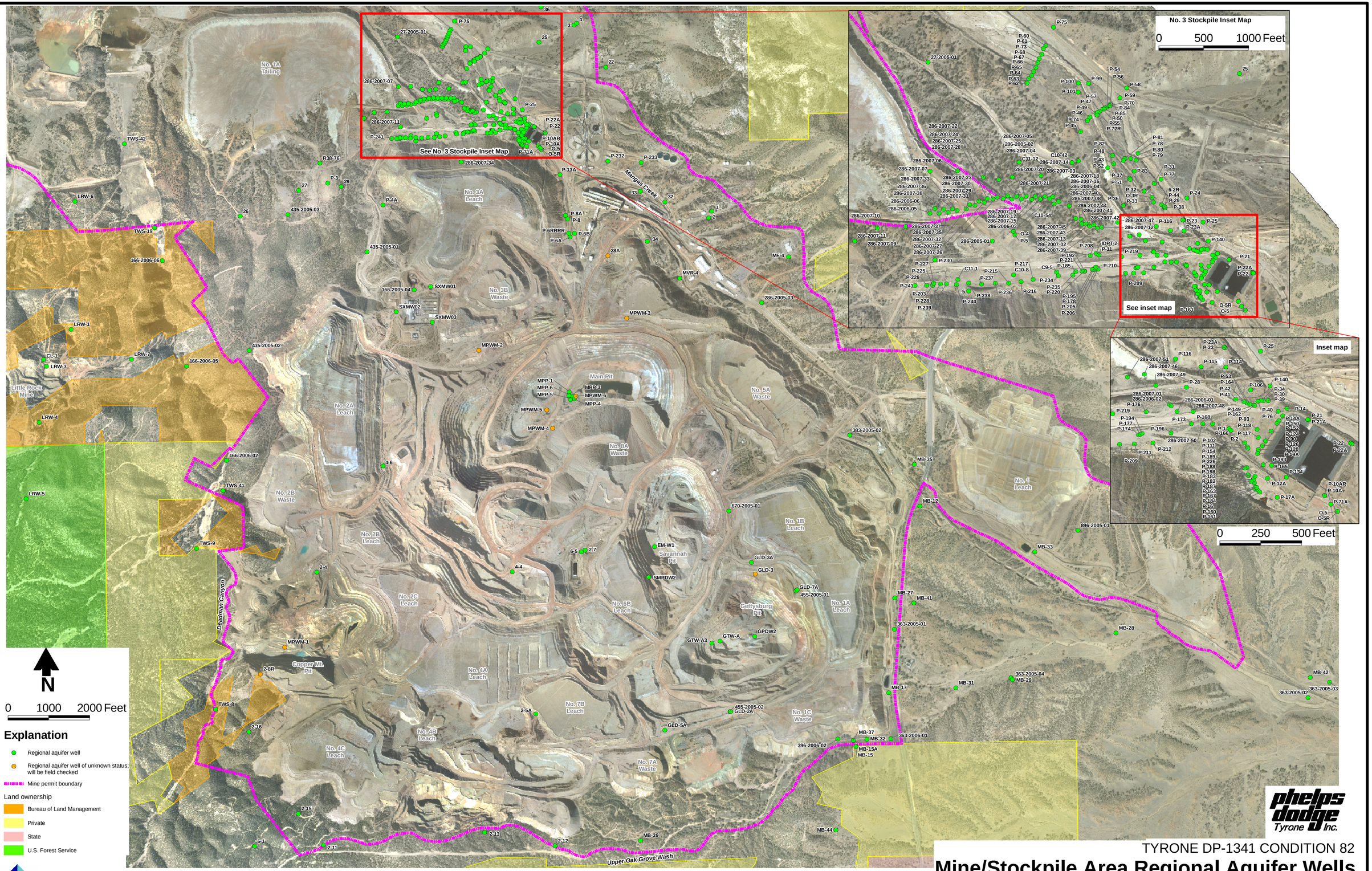
Tqm = Tertiary quartz monzonite
QTg = Gila conglomerate
msl = Mean sea level

Table 8. Summary of Amended or Corrected Observation Well Information
Page 2 of 2

Well	Previous Groundwater Designation or Well Data	Revised Aquifer Designation or Well Data	Comments
O - Oak Grove Ranch well	Regional well	Regional well with high likelihood of leaky casing; water levels and quality influenced by perched zone seepage	Well O has been monitored during some periods in the past, but has now been plugged and abandoned. It is reported to be 450.8 feet deep, completed in QTg and granite. Early water level measurements (early 1970s) at this well are about 5,880 feet msl, about 100 to 120 feet lower than more recent measurements (1983 to 2000) of about 6,000 feet msl. Because this well was completed as a supply well for the ranch, it is highly unlikely that the annular space was sealed. The water levels from this well are believed to be indicative of perched water due to casing seepage.
2-11	Screened interval 335.9 to 356.4 feet	Screened interval 143.4 to 173.8 feet	From well log. Revised screened interval is consistent with well depth of 175 feet.
2-12	Screened interval 208 to 228.4 feet	Screened interval 335.9 to 356.4 feet	From geologic log, which is different than the driller's log. Revised screened interval is more consistent with well depth of 360.5 feet.
2-13	Screened interval 388.3 to 428.3 feet	Screened interval 208 to 228.4 feet	From geologic log, which is different than the driller's log. Revised screened interval is consistent with well depth of 228 feet.
TWS-9	Regional well	Screened across shallow alluvium/colluvium and deeper Tqm	Letter from Harlan & Associates Inc. dated May 30, 2002. Water level and water quality may be a mixture of regional and shallow groundwater when alluvium is saturated.
6-5 and 2-7	Regional wells	Regional wells that can be affected significantly by nearby leaching (see below)	Well hydrographs indicate large, sudden variations in fluid level over 200 feet during the late 1980s to mid-1990s, with intervening periods with no fluid (dry). Spikes in fluid levels are always capped at 6,000 feet msl, which is the approximate land surface at each of these wells. These wells may monitor saturation of PLS near the edge of the No. 6B leach stockpile; this possibility should be considered prior to using fluid levels from these wells to develop regional groundwater maps.
2-4, 2-7, 4-4, 4-6, and 6-5	Regional wells	Regional wells with poor annular seals; fluid levels and quality may be affected by well bore seepage	Many of the early monitor wells constructed at Tyrone have (or had) a limited annular seal. These wells are remaining monitor wells in the Mine/Stockpile unit that may be significantly influenced by well bore seepage.

Tqm = Tertiary quartz monzonite
QTg = Gila conglomerate
msl = Mean sea level

Plates



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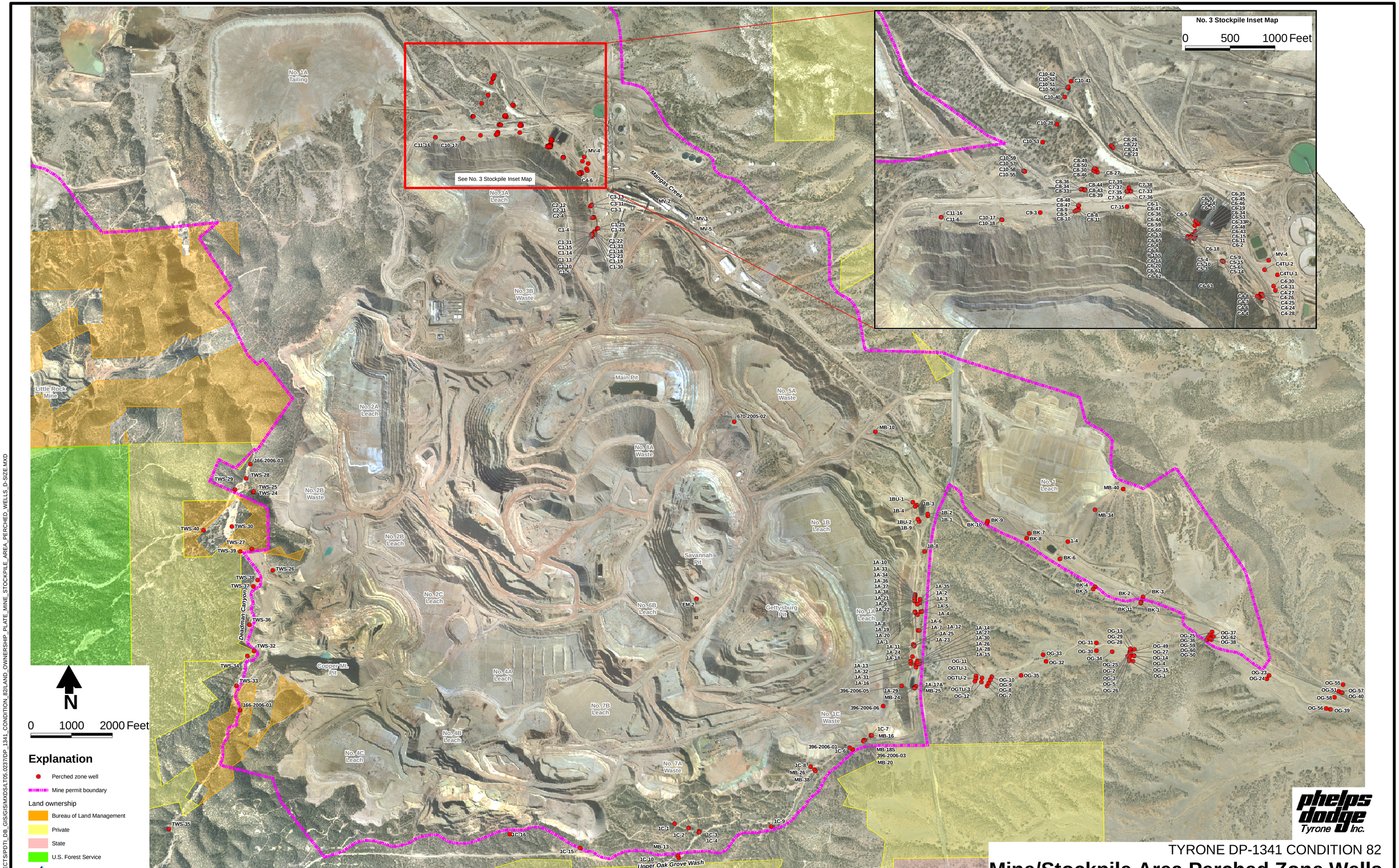
7/24/2007 JN LT05.0237

TYRONE DP-1341 CONDITION 82

Mine/Stockpile Area Regional Aquifer Wells

Plate 1



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7/24/2007
JN LT05.0237

phelps dodge Tyrone Inc.

TYRONE DP-1341 CONDITION 82

Mine/Stockpile Area Perched Zone Wells

Plate 2

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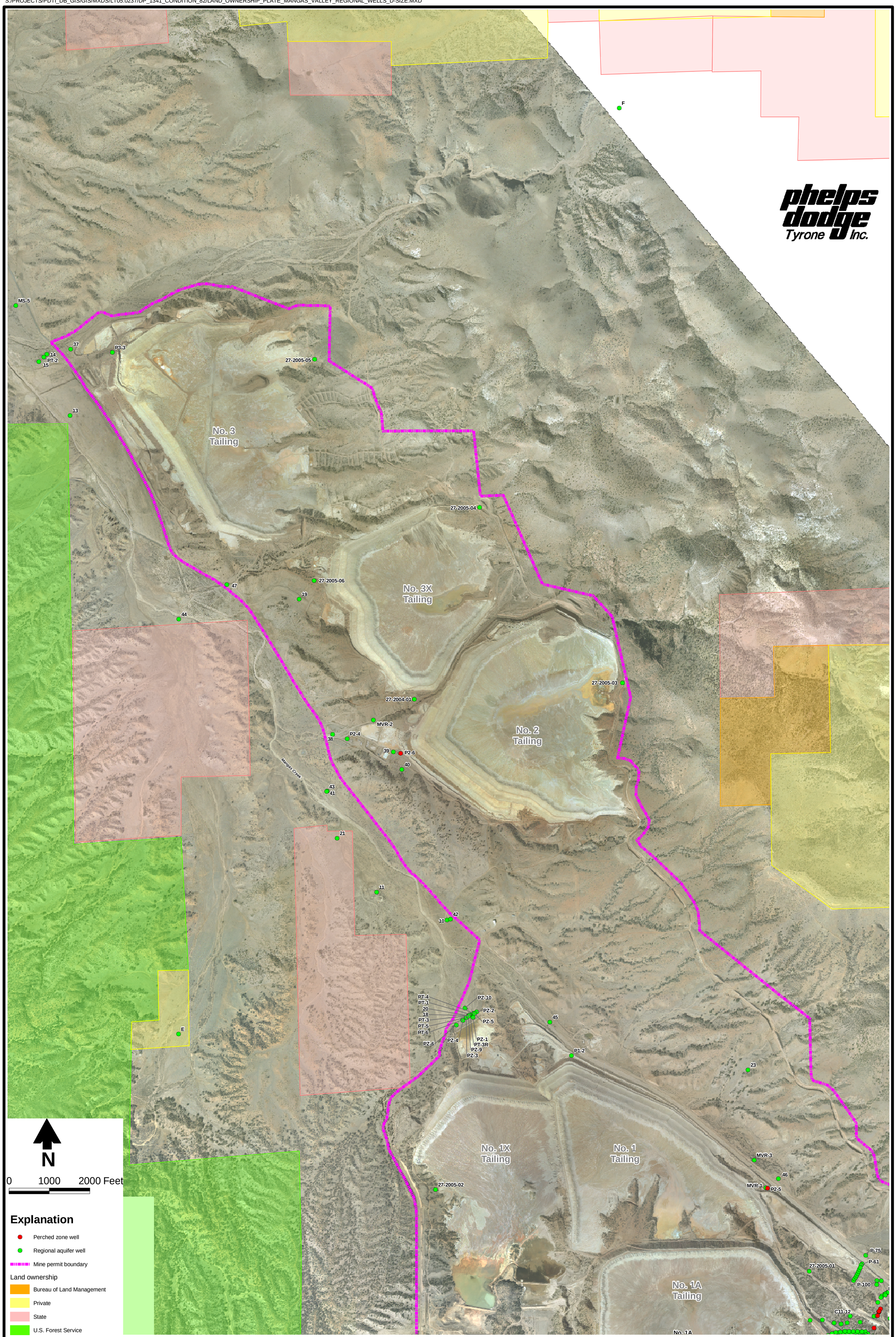

TYRONE DP-1341 CONDITION 82

Mangas Valley Regional Aquifer and Perched Zone Wells

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7/23/2007 JN LT05.0237

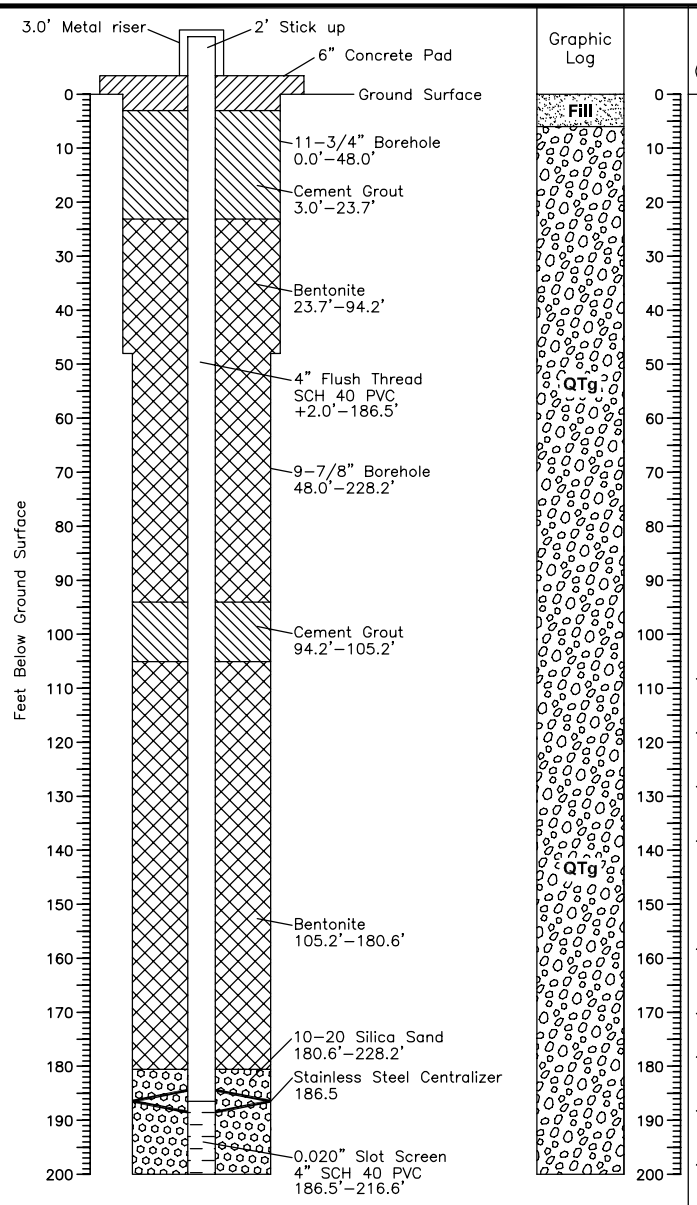
Plate 3

Appendix A

Monitor Well and Soil Boring Logs

Well Logs

T:\VDR\PROJ\00-ENV_SERVICES\ES05_0070\ES05_0070_01K.DWG (1of2)



Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
1–2	SW	Sand, reddish yellow (5YR 6/6), very fine- to coarse-grained, minor gravel, poorly sorted, subrounded to angular grains, unconsolidated, dry, probably fill from pad construction, carbonate cement, or possibly caliche.
9–10	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, 15% gravel, poorly sorted, subangular to angular grains, moderately consoidated, calcite cemented, dry, at 19 feet encounter clayey layer.
19–20	SW	Sand with clay, brown (7.5YR 5/4), clay to coarse-grained sand with minor gravel, poorly sorted, subangular to rounded grains, moderately consolidated, carbonate cement, damp to moist, at 21 feet little or no clay.
29–30	SW	Sand, brown (7.5YR 5/4), very fine- to coarse-grained, poorly sorted, angular to subangular grains, moderately consolidated, calcite cemented, dry to damp, at 34 feet strongly consolidated.
39–40	SW	Sand, reddish brown (5YR 5/4), very fine- to coarse-grained, poorly sorted, angular to mostly rounded grains, strongly consolidated with carbonate cement, damp to moist.
49–50	SW	Sand, yellowish red (5YR 5/6), trace of clay to coarse-grained sand, poorly sorted, angular to rounded grains, strongly consolidated with carbonate cement, moist.
59–60	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular grains, strongly consolidated with carbonate cement, dry.
69–70	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular grains, strongly consolidated with carbonate cement, dry to damp.
79–80	SW	Sand, reddish brown (5YR 5/4), very fine- to coarse-grained with 8% gravel, poorly sorted, angular to rounded grains, strongly consolidated with carbonate cement, moist.
89–90	SW	Sand, reddish brown (5YR 5/4), very fine- to coarse-grained with 8% gravel, poorly sorted, angular to rounded grains, strongly consolidated with carbonate cement, moist.
99–100	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to subrounded grains, strongly consolidated with carbonate cement, dry.
109–110	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, about 2–3% gravel, poorly sorted, angular to subrounded grains, strongly consolidated with carbonate cement, dry (softened at 109 feet).
119–120	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, 3–4% gravel, poorly sorted, angular to subrounded grains, strongly consolidated with carbonate cement, dry.
129–130	SW	Sand, light brown (7.5YR 6/4), very fine- to medium-grained, poorly sorted, angular to rounded grains, moderately consolidated with carbonate cement, dry.
139–140	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to subrounded grains, moderately consolidated with carbonate cement, dry.
150–151	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to subrounded grains, moderately consolidated with carbonate cement, dry to damp.
159–160	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to subrounded grains, poorly consolidated with carbonate cement, dry, very reactive with hydrochloric acid.
171–172	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to subrounded grains, poorly consolidated with carbonate cement, dry, very reactive with hydrochloric acid.
179–180	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to subrounded grains, poorly consolidated with carbonate cement, dry, very reactive with hydrochloric acid.
189–190	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to rounded grains, poorly consolidated with carbonate cement, dry.
199–200	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to rounded grains, poorly consolidated with carbonate cement, dry.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 6-2-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 22643.101
Easting: 7236.901
Elevation: 5654.065

PHELPS DODGE
TYRONE, INC.

Well 27-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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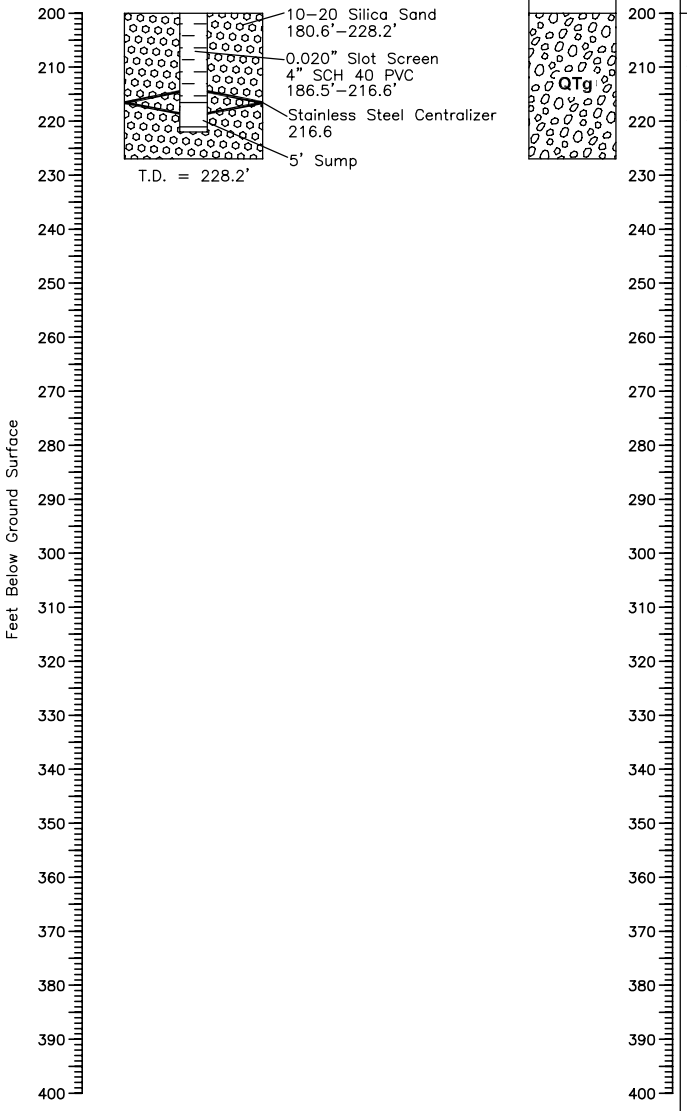

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209-210	SW	Sand, light brown (7.5YR 6/4), very fine- to coarse-grained, poorly sorted, angular to rounded grains, poorly consolidated with carbonate cement, dry to damp, trace of clay coating some grains.
219-220	SW	Sand with clay, brown (7.5YR 5/4), clay (8%) to coarse-grained sand, 2% gravel, poorly sorted, angular to rounded grains, poorly consolidated with carbonate cement, dry to damp.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 6-2-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 22643.101
Easting: 7236.901
Elevation: 5654.065

PHELPS DODGE
TYRONE, INC.

Well 27-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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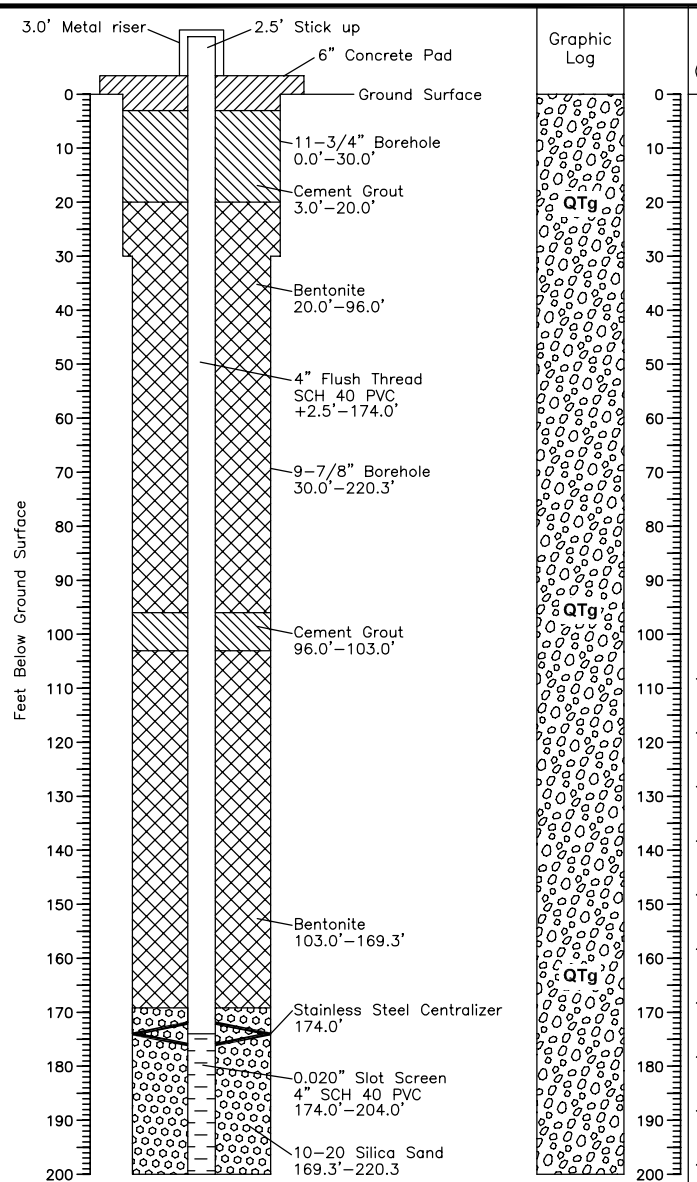

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
1–2	SW	Fine to very coarse sand with silt and clay, dark brown (7.5YR 3/2), poorly sorted, subangular, slightly plastic, no reaction with HCl, dry, organic rich.
9–10	SW	Coarse sand with clay, silt, and gravel, reddish yellow (7.5YR 6/6), poorly sorted, subangular, slightly plastic, no reaction with HCl, dry (<5% gravel, up to 1.5 cm diameter).
19–20	SC	Clayey sand with silt and <5% gravel (up to 1.5 cm), reddish yellow (7.5YR 6/6), poorly sorted, subangular, plastic, reacts with HCl, dry, ~30–40% clay, 60% coarse sand.
29–30	SC/GC	Clayey, coarse sand to fine gravel with silt, gravel up to 3 cm, reddish yellow (7.5YR 6/6), poorly sorted, angular to subangular, plastic, reacts with HCl, dry, ~30–40% clay, 50–60% coarse sand to fine gravel, coarse gravel ~10%, some pieces may be chippings from a large boulder.
39–40	SW	Coarse sand with fine gravel (<10%), silt and clay, reddish yellow (7.5YR 6/4), poorly sorted, subangular, nonplastic, reacts with HCl, dry.
49–50	SW	Coarse sand with fine gravel (<10%), silt and clay, reddish yellow (7.5YR 6/4), poorly sorted, subangular, nonplastic, reacts with HCl, dry.
59–60	SW	Coarse sand with clay and silt, reddish yellow (7.5YR 6/4), poorly sorted, subangular to subrounded, slightly plastic, reacts with HCl, dry.
69–70	SW	Coarse sand with clay, silt, and fine gravel (up to 1 cm), reddish yellow (7.5YR 6/6), poorly sorted, subangular to subrounded, nonplastic, reacts with HCl, dry.
79–80	SC	Clayey sand, reddish yellow (7.5YR 6/6), medium to coarse sand, poorly sorted, plastic reacts with HCl, dry.
89–90	SC	Clayey sand, reddish yellow (7.5YR 6/6), medium to coarse sand, poorly sorted, plastic reacts with HCl, dry.
99–100	SC	Clayey sand, reddish yellow (7.5YR 6/6), medium to coarse sand, poorly sorted, plastic reacts with HCl, dry.
109–110	SC	Clayey sand with fine gravel (<5%, <0.5 cm), medium to coarse sand, poorly sorted, plastic, reacts with HCl, dry.
119–120	SC	Clayey sand, light brown (7.5YR 6/4), fine to medium sand, poorly sorted, plastic, reacts with HCl, dry.
129–130	SW	Medium to coarse sand with fine gravel (10–20%, up to 1.5 cm) and silt, poorly sorted, nonplastic, reacts with HCl, dry.
139–140	GW	Fine gravel with medium to coarse sand and clay, poorly sorted, subangular to subrounded, reacts with HCl, clasts include feldspars and quartz.
149–150	SP/GP	Coarse sand to fine gravel, well sorted, angular to subangular, clasts include feldspars, quartz, and chlorite, dry.
159–160	SP/GP	Coarse sand to coarse gravel (up to 3.5 cm), angular to subangular, clasts include feldspars, quartz, and chlorite, Fe-oxidation on clasts, dry.
169–170	SP/GP	Coarse sand to fine gravel, well sorted, angular to subangular, clasts include feldspars, quartz, and chlorite, Fe-oxidation on clasts, dry.
179–180	SP/GP	Coarse sand to fine gravel, well sorted, angular to subangular, clasts include feldspars, quartz, and chlorite, Fe-oxidation on clasts, dry.
189–190	SP	Coarse sand with fine gravel (~15%), well sorted, angular to subangular, clasts include feldspars and quartz, Fe-oxidation on clasts.
199–200	SP	Coarse sand with fine gravel (~15%), well sorted, angular to subangular, clasts include feldspars and quartz, Fe-oxidation on clasts.

Geologist: J. Ayarbe
Driller: WDC Exploration
Date completed: 7-6-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 24666.006
Easting: -2026.549
Elevation: 5584.508

PHELPS DODGE
TYRONE, INC.

Well 27-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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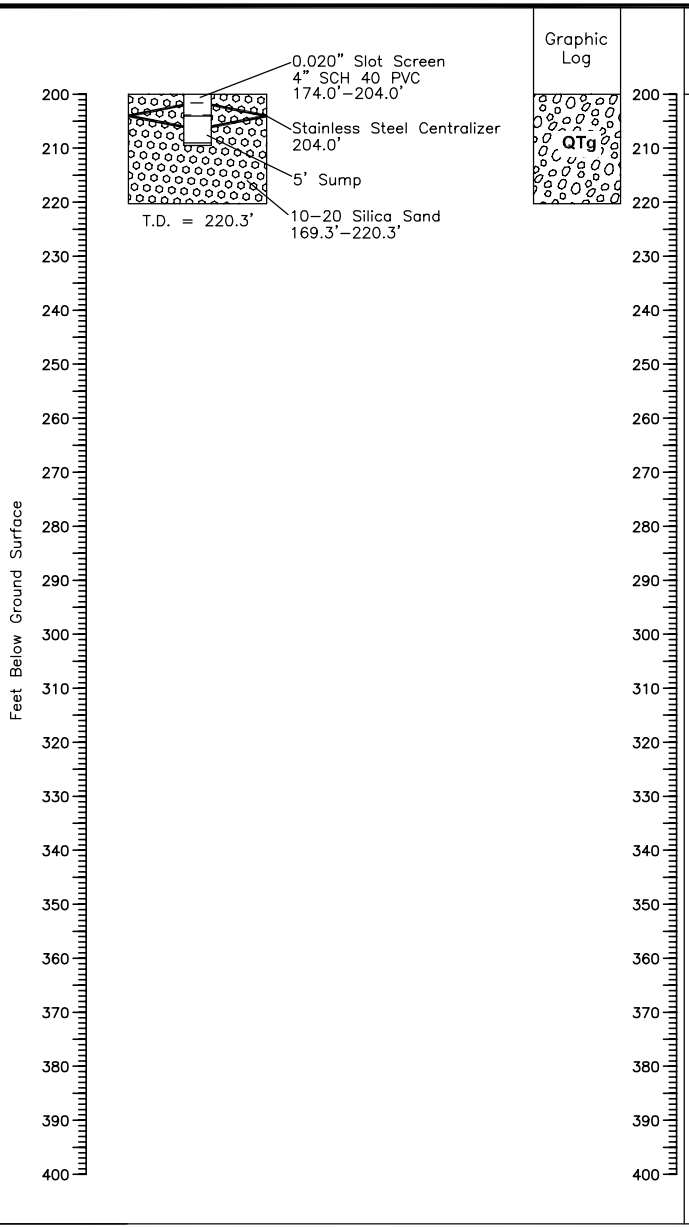

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209-210	SP	Coarse sand with fine gravel (~15%), well sorted, angular to subangular, clasts include feldspars and quartz, Fe-oxidation on clasts.
219-220	SP	Coarse sand with fine gravel (~15%), well sorted, angular to subangular, clasts include feldspars and quartz, Fe-oxidation on clasts.

Geologist: J. Ayarbe
Driller: WDC Exploration.
Date completed: 7-6-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 24666.006
Easting: -2026.549
Elevation: 5584.508

PHELPS DODGE
TYRONE, INC.

Well 27-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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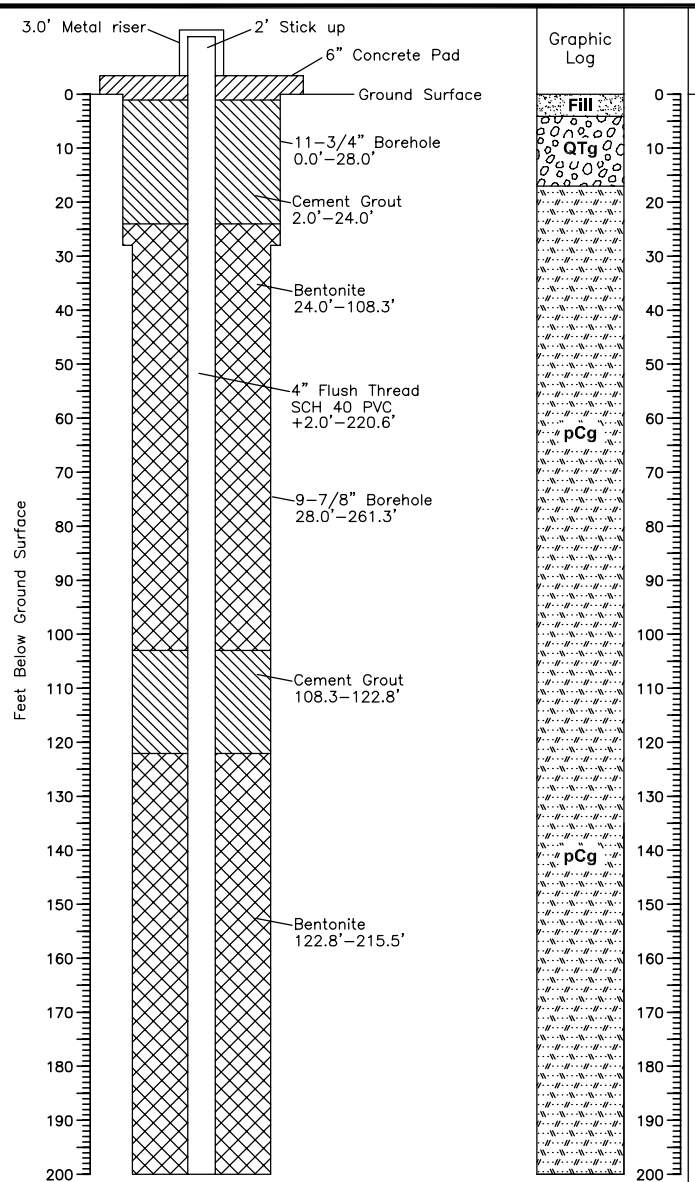

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
2–3	CH	Clay with sand (road fill), yellowish red (5YR 6/4), clay (60%) to coarse-grained sand, poorly sorted, angular grains, high plasticity, unconsolidated, moist, at 6 feet encounter sand with silt (Gila Conglomerate Contact), at 9 feet encounter gravel with clay.
8–10	GW	Gravel with clay, yellowish red (5YR 6/4), clay (20%) to 2" gravel, poorly sorted, angular to rounded grains, strongly consolidated, dry, at 17 feet encounter granite.
18–20	pCg	Granite, pinkish white (5YR 8/2), 30% quartz, 5% K-feldspar, 15% plagioclase, plagioclase highly saussuritized, very strongly indurated, dry, cuttings subrounded, possible gouge.
27–30	pCg	Granite, white (5YR 8/1), 25% quartz, 55% K-feldspar, 20% plagioclase, plagioclase highly saussuritized, very strongly indurated, dry, at 38 feet softened up.
38–40	pCg	Alterated granite, reddish brown (2.5YR 4/4), 8% clay, 80% sand-size particles, 12% gravel-size particles, poorly indurated, moist, possible gouge or fracture zone.
48–50	pCg	Alterated granite, red (2.5YR 4/6) to pale red (2.5YR 7/2), 10% clay, 30% sand size, 52% gravel-size particles, clay moist, poorly indurated, at 58 feet strongly indurated.
58–60	pCg	Granite, pale red (10R 6/2), 30% quartz, 40% K-feldspar, 30% plagioclase, plagioclase saussuritized to sericite and white clay, very strongly indurated, dry.
68–70	pCg	Granite, pale red (10R 6/2), 30% quartz, 40% K-feldspar, 30% plagioclase, plagioclase saussuritized to sericite and white clay, very strongly indurated, dry.
78–80	pCg	Granite, pale red (10R 6/2), 30% quartz, 40% K-feldspar, 30% plagioclase, plagioclase saussuritized to sericite and white clay, very strongly indurated, dry.
90–92	pCg	Granite, pale red (10R 6/2), 30% quartz, 40% K-feldspar, 30% plagioclase, plagioclase saussuritized to sericite and white clay, very strongly indurated, dry.
98–100	pCg	Granite, pinkish white (10R 8/2), 30% quartz, 45% K-feldspar, 25% plagioclase, strongly indurated, dry.
110–112	pCg	Granite, pinkish white (10R 8/2), 30% quartz, 45% K-feldspar, 25% plagioclase, strongly indurated, dry, most of cuttings being blown away as dust.
118–121	pCg	Granite, pinkish white (2.5YR 8/2), 35% quartz, 50% K-feldspar, 15% plagioclase, strongly indurated, dry.
128–132	pCg	Granite, pinkish white (2.5YR 8/2), 35% quartz, 50% K-feldspar, 15% plagioclase, strongly indurated, dry, a lot of Fe- or Mn-oxide coating fractures.
138–141	pCg	Granite, pinkish white (2.5YR 8/2), 35% quartz, 50% K-feldspar, 15% plagioclase, strongly indurated, dry, start injecting foam to control dust, borehole dry to this depth.
149–150	pCg	Granite, weak red (10R 5/4), 40% quartz, 40% K-feldspar, 20% plagioclase, plagioclase saussuritized to sericite, very strongly indurated.
160–164	pCg	Granite, reddish gray (5YR 5/2), 50% quartz, 20% K-feldspar, 30% plagioclase, possible quartz vein, very strongly indurated.
169–171	pCg	Granite, reddish gray (5YR 5/2), 50% quartz, 20% K-feldspar, 30% plagioclase, possible quartz vein, very strongly indurated;cuttings consist of large 1" diameter chips, some rounded, possible fracture zone.
178–182	pCg	Granite, reddish gray (5YR 5/2), 50% quartz, 20% K-feldspar, 30% plagioclase, plagioclase saussuritized to sericite and epidote, possible quartz vein, very strongly indurated.
188–191	pCg	Granite, reddish brown (2.5YR 5/3), 30% quartz, 50% K-feldspar, 20% plagioclase, plagioclase saussuritized to sericite and epidote, 2–3% mafics (possibly alterated hornblende), strongly indurated.
198–200	pCg	Granite, reddish brown (2.5YR 5/3), 35% quartz, 45% K-feldspar, 20% plagioclase, plagioclase saussuritized to sericite and epidote, trace of mafics (possibly hornblende), strongly indurated.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 6-6-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 37219.849
Easting: 2607.433
Elevation: 5599.978

PHELPS DODGE
TYRONE, INC.
Well 27-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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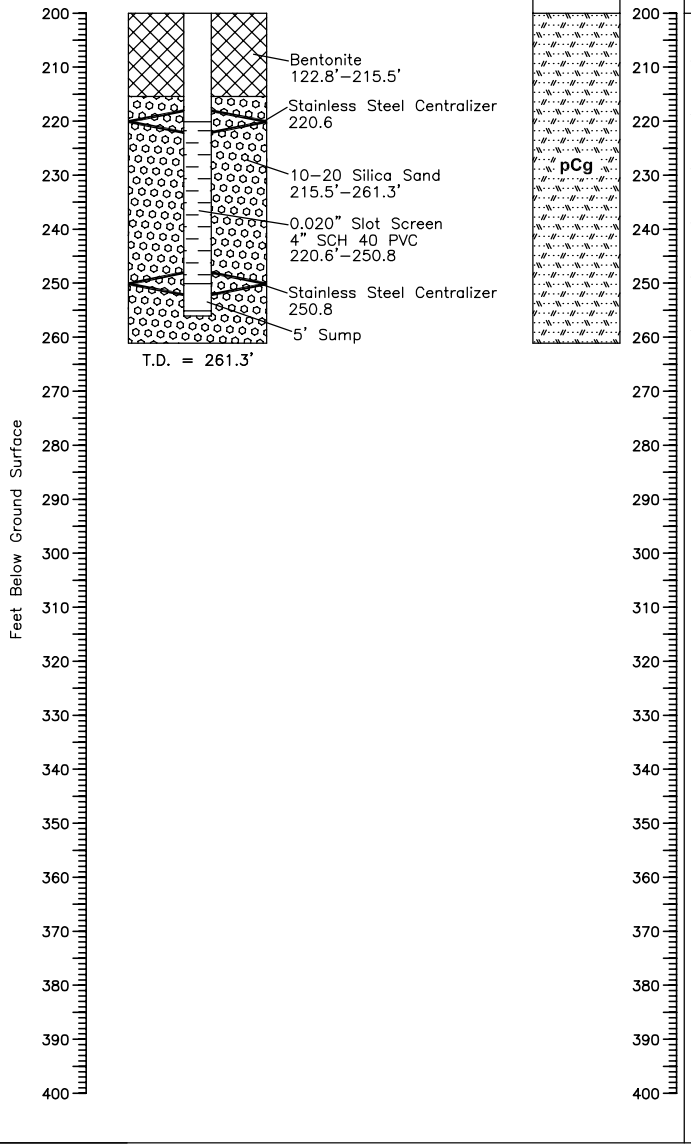

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
	208–210	Granite	Granite, reddish brown (2.5YR 5/3), 30% quartz, 40% K–feldspar, 30% plagioclase, plagioclase highly saussuritized to sericite and epidote, trace hornblende, very strongly indurated.
	218–220	Granite	Granite, reddish brown (2.5YR 4/3), 40% quartz, 50% K–feldspar, 10% plagioclase, plagioclase saussuritized, aplite (finely crystalline) strongly indurated, possible dike.
	228–230	Granite	Granite, reddish brown (2.5YR 4/3), 40% quartz, 50% K–feldspar, 10% plagioclase, plagioclase highly saussuritized to sericite and epidote, aplite (finely crystalline) strongly indurated, possible dike.
	238–240	Granite	Granite, reddish brown (2.5YR 5/3), 40% quartz, 40% K–feldspar, 20% plagioclase, plagioclase saussuritized to serciite and epidote, coarsely crystalline again, strongly indurated.
	248–250	Granite	Granite, light reddish brown (2.5YR 6/3), 30% quartz, 55% K–feldspar, 15% plagioclase, plagioclase saussuritized to sericite and epidote, strongly indurated.
	258–260	Granite	Granite, light reddish brown (2.5YR 6/3), 30% quartz, 55% K–feldspar, 15% plagioclase, plagioclase saussuritized to sericite and epidote, strongly indurated.

Geologist: C. Pigman
Driller: WDC Exploration.
Date completed: 6–6–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 37219.849
Easting: 2607.433
Elevation: 5599.978

PHELPS DODGE
TYRONE, INC.

Well 27-2005-03

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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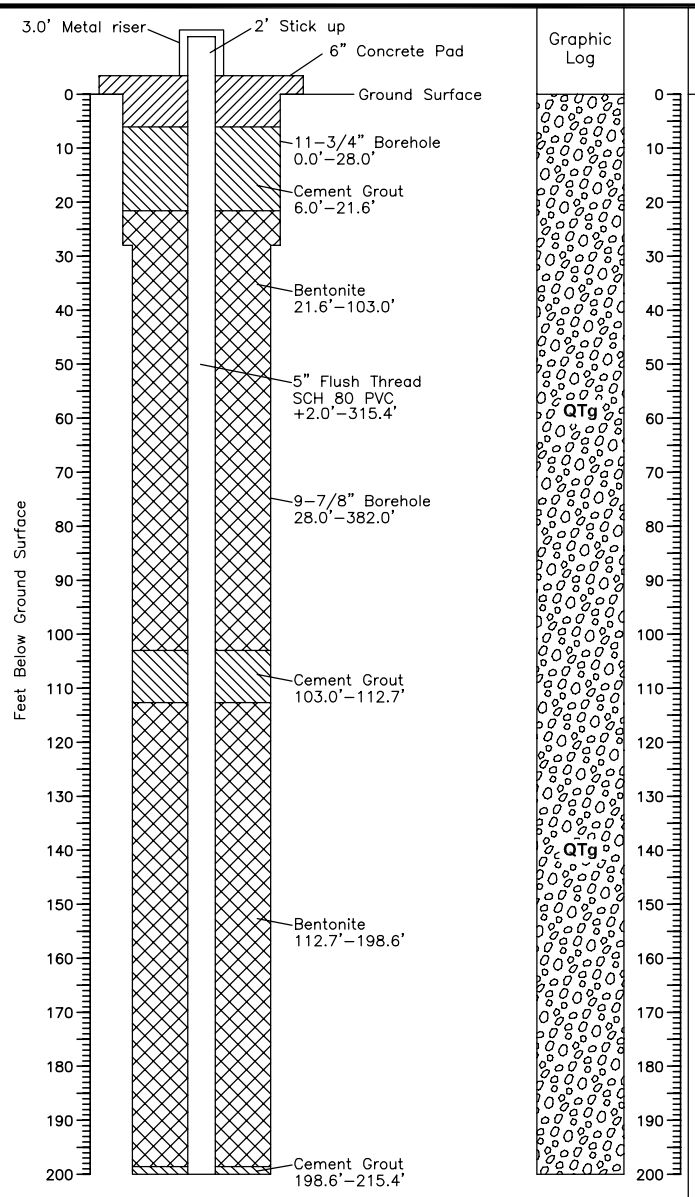

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
1–2	SC	Clayey sand (road fill), reddish brown (5YR 4/4), clay to gravel, 15% clay, 75% sand, 10% gravel, poorly sorted, angular grains, unconsolidated, moist, moderate plasticity.
10–11	SC	Clayey sand, light brown (7.5YR 6/3), clay to medium-grained sand, poorly sorted, rounded grains, calcite rich, moderate plasticity, unconsolidated, dry.
18–20	SC	Clayey sand, brown (7.5YR 5/4), clay (30%) to coarse-grained sand, poorly sorted, subangular to rounded grains, moderate plasticity, unconsolidated, moist, calcite rich.
29–30	SC	Clayey sand, light brown (7.5YR 6/4), clay (45%) to medium-grained sand, poorly sorted, subangular to rounded grains, moderate plasticity, slightly consolidated, damp to moist, calcite rich with caliche nodules.
38–40	SC	Clayey sand, brown (7.5YR 5/4), clay (45%) to coarse-grained sand, poorly sorted, angular to rounded grains, moderate plasticity, slightly consolidated, dry, calcite rich.
49–50	SC	Clayey sand, light brown (7.5YR 6/4), clay (45%) to fine-grained sand, poorly sorted, angular to rounded grains, moderate plasticity, slightly consolidated, dry, calcite rich, some mica.
59–60	SC	Clayey sand, light brown (7.5YR 6/4), clay (45%) to fine-grained sand, poorly sorted, angular to rounded grains, moderate plasticity, slightly consolidated, dry, calcite rich, some mica, at 64–65 resistant gravel layer.
69–79	SC/GW	Clayey sand with interbedded gravels, reddish brown (5YR 5/4), clay (30%) to 3/4" gravel (5%), mostly sand, poorly sorted, subangular to rounded grains, moderate plasticity, slightly to moderately consolidated, calcite rich, dry.
79–80	SC/GW	Clayey sand with interbedded gravels, reddish brown (5YR 5/4), clay (30%) to 3/4" gravel (5%), mostly sand, poorly sorted, subangular to rounded grains, moderate plasticity, slightly to moderately consolidated, calcite rich, dry.
89–90	SC/GW	Clayey sand with interbedded gravels, light brown (7.5YR 6/4), clay (30%) to fine-grained sand, poorly sorted, angular to rounded grains, moderate plasticity, slightly consolidated, calcite rich, dry.
99–100	SC/GW	Clayey sand with interbedded gravels, light brown (7.5YR 6/3), clay (25%) to 1" diameter gravel, mostly sand, poorly sorted, angular to rounded clasts, moderate plasticity, slightly consolidated, calcite rich, dry.
109–110	SC/GW	Clayey sand with interbedded gravels, light reddish brown (5YR 6/4), clay (15%) to 3/4" diameter gravel, mostly sand, poorly sorted, slight plasticity, slightly consolidated, dry, calcite rich.
119–126	SC/GW	Clayey sand with gravel, light reddish brown (5YR 6/4), clay (15%) to 2" diameter gravel (45%), poorly sorted, subangular to rounded clasts of volcanics and sediments, slight plasticity, slightly consolidated, dry, carbonate rich.
129–130	SC/GW	Clayey sand with gravel, light reddish brown (5YR 6/4), clay (20%) to 1" diameter gravel (25%), mostly sand, poorly sorted, subangular to rounded clasts of volcanic and plutonic rock, slightly consolidated, carbonate rich, dry.
139–140	SW/GW	Sand with clay and interbedded gravels, pink (7.5YR 7/3), clay (10%) to medium-grained sand, trace of gravel, poorly sorted, angular to subrounded grains, slightly consolidated, carbonate rich, dry.
148–150	SW/GW	Sand with gravel, light brown (7.5YR 6/3), minor clay (8%) to 3/4" diameter gravel (40%), poorly sorted, subangular to rounded clasts, lot of tuff and basalt, nonplastic, slightly consolidated, dry to damp, carbonate rich.
158–161	SW/GW	Sand with interbedded gravels, light brown (7.5YR 6/3), minor clay to coarse-grained sand, poorly sorted, subangular to rounded grains, slightly consolidated, carbonate rich, dry.
168–170	SW/GW	Sand with gravel, light brown (7.5YR 6/3), minor clay to 3/4" diameter gravel (20%), mostly sand, poorly sorted, angular to rounded clasts, slightly consolidated, carbonate rich, dry to damp.
178–181	SW/GW	Sand with interbedded gravels, brown (7.5YR 5/3), very fine- to coarse-grained, poorly sorted, subangular to rounded grain, slightly consolidated, carbonate rich, damp to moist.
188–196	SW/GW	Sand with clay and gravel, brown (7.5YR 5/3), clay (10%) to 3/8" diameter gravel (10%), mostly sand, poorly sorted, angular to rounded clasts, slight plasticity, slightly consolidated, carbonate rich, moist.
198–200	SW/GW	Sand with clay and gravel, brown (7.5YR 5/4), clay (10%) to 3/4" diameter gravel (15%), mostly sand, poorly sorted, angular to subrounded grains, slight to moderate plasticity, slightly consolidated, carbonate rich, moist.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 6-9-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 41570.100
Easting: -928.779
Elevation: 5564.426

PHELPS DODGE
TYRONE, INC.

Well 27-2005-04

Daniel B. Stephens & Associates, Inc.
9-20-05 JN ES05_0070

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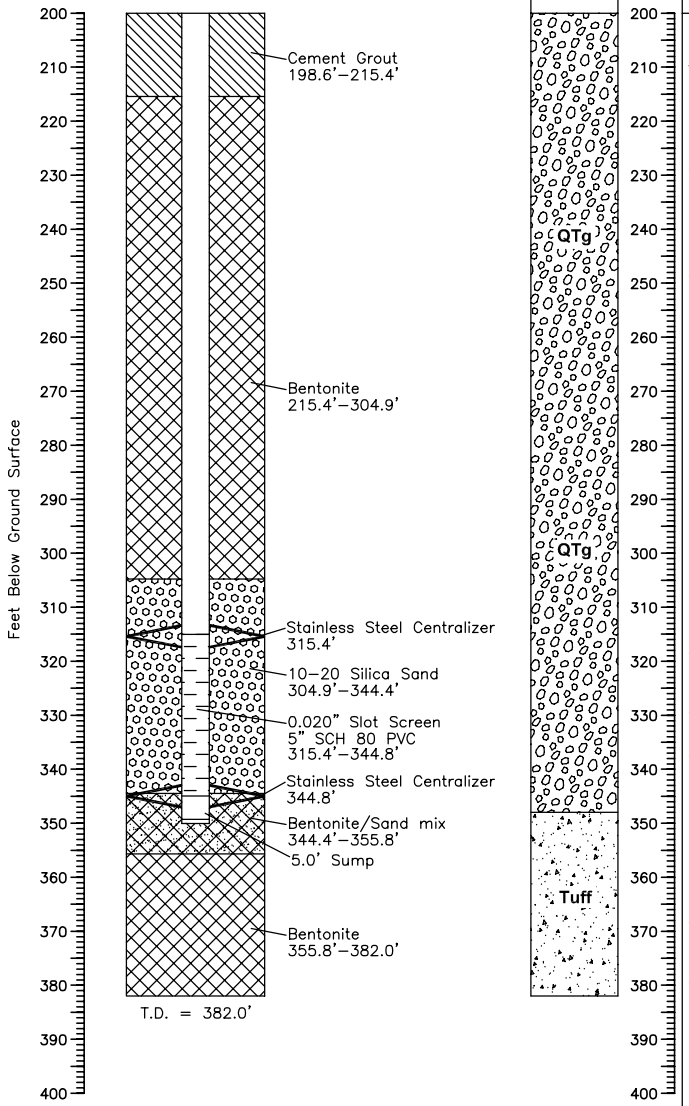

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209–210	SC/GW	Clayey sand with gravel, brown (7.5YR 4/3), clay (15%) to 3/8" diameter gravel (15%), mostly sand, poorly sorted, angular to rounded grains, moderate plasticity, slightly consolidated, carbonate rich, moist.
219–221	SW	Sand, pink (7.5YR 7/3), very fine– to coarse–grained, poorly sorted, angular to rounded grains, nonplastic, slightly consolidated, no carbonate, dry, mostly volcanic clasts.
228–230	SW/GW	Sand with gravel, pink (7.5YR 7/3), very fine–grained sand to 3/4" diameter gravel (15%), poorly sorted, angular to rounded grains, nonplastic, slightly consolidated, minor carbonate, dry.
238–241	SW/GW	Sand with gravel, pink (7.5YR 7/3), very fine–grained sand to 3/4" diameter gravel (<15%), poorly sorted, angular to rounded grains, nonplastic, slightly consolidated, no carbonate, dry.
248–250	SW/GW	Sand with gravel, pinkish gray (7.5YR 7/2), very fine–grained sand to 3/8" diameter gravel (20%), poorly sorted, angular to rounded clasts, nonplastic, slightly consolidated, carbonate rich, dry.
259–261	SW/GW	Sand with gravel, pinkish gray (7.5YR 7/2), very fine–grained sand to 3/8" diameter gravel (20%), poorly sorted, angular to rounded clasts, nonplastic, slightly consolidated, carbonate rich, dry, at 265 feet loose interval with no gravel.
269–271	SW	Sand, pinkish gray (7.5YR 7/2), very fine– to coarse–grained sand, minor gravel, poorly sorted, subangular to rounded grains, nonplastic, poorly consolidated, carbonate rich, dry, at 277 encounter gravel.
278–279	SW/GW	Sand with gravel, pinkish gray (7.5YR 7/2), minor clay (5%), very fine–grained sand to 3/8" diameter gravel (30%), poorly sorted, subangular to rounded clasts, slightly consolidated, no carbonate, dry.
288–291	SW/GW	Sand with gravel, pinkish gray (7.5YR 7/2), minor clay (5%), very fine–grained sand to 3/8" diameter gravel (30%), poorly sorted, subangular to rounded clasts, slightly consolidated, no carbonate, dry.
299–301	SW/GW	Sand with gravel, pinkish gray (7.5YR 7/2), minor clay (5%), very fine–grained sand to 3/8" diameter gravel (25%), poorly sorted, subangular to rounded grains, slight plasticity, slightly consolidated, no carbonate, dry, start injecting water.
309–311	SW/GW	Gravel (any fines washed away), light gray (7.5YR 7/1) to weak red (10R 4/4), up to 3/4" diameter, angular to rounded clasts, mostly volcanic and sandstone, slightly consolidated.
318–320	SW/GW	Coarse sand and gravel (any fines washed away), light gray (7.5YR 7/1) to weak red (10R 4/4), up to 3/4" diameter, angular to rounded clasts, mostly volcanic and sandstone, slightly consolidated.
329–332	SW/GW	Coarse sand and gravel (any fines washed away), light gray (7.5YR 7/1) to weak red (10R 4/4), up to 3/4" diameter, angular to rounded clasts, mostly volcanic and sandstone, slightly consolidated.
337–340	SW/GW	Gravel (fines washed away), light gray (7.5YR 7/1) to weak red (10R 4/4), up to 3/4" diameter, angular to rounded clasts, mostly volcanic and sandstone, slightly consolidated, at 348 feet encounter biotite rhyolite tuff.
348–351	Tuff	Gravel and tuff.
358–361	Tuff	Biotite rhyolite tuff, light gray (7.5YR 7/1), euhedral phenocrysts of biotite and quartz, small crystals of K–spar (sanidine), non–welded to slightly welded.
368–370	Tuff	Biotite rhyolite tuff, light gray (7.5YR 7/1), euhedral phenocrysts of biotite and quartz, small crystals of K–spar (sanidine), non–welded to slightly welded.
379–382	Tuff	Biotite rhyolite tuff, light gray (7.5YR 7/1), euhedral phenocrysts of biotite and quartz, small crystals of K–spar (sanidine), non–welded to slightly welded.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 6–9–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters:10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 41570.100
Easting: –928.779
Elevation: 5564.426

PHELPS DODGE
TYRONE, INC.
Well 27-2005-04

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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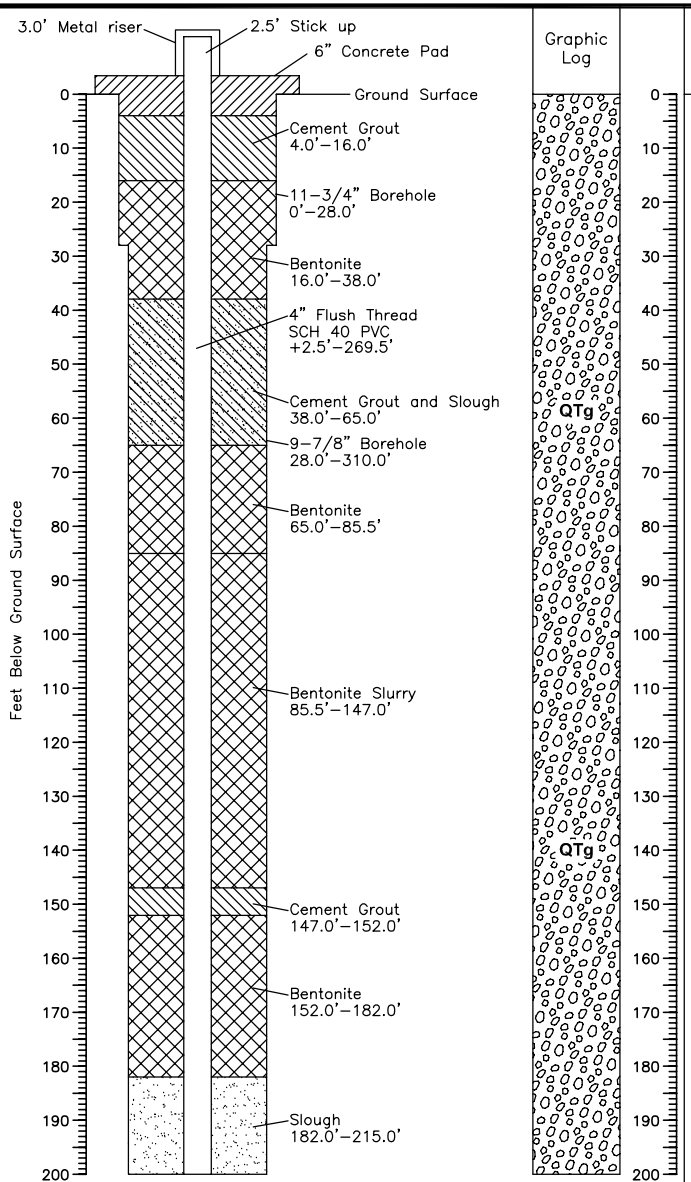

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
1–2	SW	Sand with clay, grayish brown (10YR 5/2), clay (10%) to coarse–grained sand, poorly sorted, subangular to rounded grains, slight plasticity, moderately consolidated, carbonate rich, dry.
9–10	SW	Sand with clay and gravel, brown (7.5YR 5/2), clay (10%) to 3/4 inch diameter gravel (15%), poorly sorted, angular to rounded grains, slight plasticity, moderately consolidated, carbonate rich, dry.
18–20	SW	Sand with clay and gravel, reddish brown (5YR 5/4), clay (10%) to 1 inch diameter gravel (35%), poorly sorted, angular to subrounded clasts, slight plasticity, moderately consolidated, carbonate rich, dry, at 25 feet moist.
29–32	SW	Sand with clay and gravel, reddish brown (5YR 5/4), clay (10%) to 1 inch diameter gravel (45%), poorly sorted, angular to subrounded clasts, slight plasticity, moderately consolidated, carbonate rich, dry.
–	–	No cuttings.
50–52	SW	Sand with clay and gravel, brown (7.5YR 5/4), clay (10%) to 3/4 inch diameter gravel (30%), poorly sorted, subangular to rounded clasts, slight plasticity, moderately to strongly consolidated, carbonate rich, dry.
58–60	SW	Sand with clay and gravel, reddish brown (5YR 5/4), clay (10%) to 3/8 inch diameter gravel (25%), poorly sorted, angular to rounded clasts, slight plasticity, moderately consolidated, carbonate rich, damp to moist.
68–70	SW	Sand with clay and gravel, yellowish red (5YR 5/6), clay (10%) to 3/4 inch diameter gravel (30%), poorly sorted, subangular to rounded clasts, slight plasticity, moderately consolidated, carbonate rich, caliche nodules, damp to moist.
80–82	SW	Sand with clay and gravel, yellowish red (5YR 5/6), clay (10%) to 3/4 inch diameter gravel (30%), poorly sorted, subangular to rounded clasts, slight plasticity, moderately consolidated, carbonate rich, caliche nodules, damp to moist.
88–89	SW	Sand with clay and gravel, yellowish red (5YR 5/6), clay (10%) to 3/4 inch diameter gravel (30%), poorly sorted, subangular to rounded clasts, slight plasticity, moderately consolidated, carbonate rich, caliche nodules, damp to moist.
98–99	SW	Sand with silt and gravel, light brown (7.5YR 6/4), silt (10%) to 3/8 inch diameter gravel (15%), mostly sand, poorly sorted, subrounded to rounded grains, slight plasticity, moderately consolidated, carbonate rich, caliche nodules, damp to moist.
108–109	SW	Sand with clay and gravel, reddish brown (5YR 5/4), clay (10%) to 3/8 inch diameter gravel (20%), angular to subrounded grains, poorly sorted, slight plasticity, moderately consolidated, carbonate rich, damp to moist.
119–120	SW	Sand with clay and gravel, reddish brown (5YR 5/4), clay (10%) to 3/8 inch diameter gravel (20%), angular to subrounded grains, poorly sorted, slight plasticity, moderately consolidated, carbonate rich, damp to moist.
129–130	SW	Sand with silt, brown (7.5YR 5/4), silt (10%) to coarse–grained sand, minor gravel, poorly sorted, angular to subrounded grains, slight plasticity, moderately consolidated, carbonate rich, caliche nodules, damp to moist.
139–140	SW	Sand, light brown (7.5YR 6/3), very fine– to medium–grained, poorly sorted, angular to subrounded grains, nonplastic, moderately consolidated, carbonate rich, dry.
148–150	SW	Sand, light brown (7.5YR 6/3), very fine– to medium–grained, poorly sorted, angular to subrounded grains, nonplastic, moderately consolidated, carbonate rich, dry.
158–160	SC	Clayey sand with gravel, brown (7.5YR 5/4), clay (15%) to 1/2 inch diameter gravel (15%), mostly sand, poorly sorted, angular to rounded grains, moderate plasticity, moderately consolidated, carbonate rich, caliche nodules, dry.
168–170	SW	Sand with silt, brown (7.5YR 5/4), silt (10%) to coarse–grained sand, poorly sorted, angular to rounded grains, slight plasticity, moderately consolidated, carbonate rich, caliche nodules, dry.
178–180	SW	Sand with silt, brown (7.5YR 5/4), silt (10%) to coarse–grained sand, some 3/8 inch diameter gravel (10%), poorly sorted, angular to rounded grains, slight plasticity, moderately consolidated, carbonate rich, caliche nodules, dry.
188–190	SW	Sand, pale brown (10YR 6/3), very fine– to coarse–grained, minor 3/8 inch diameter gravel (5%), poorly sorted, angular to rounded grains, nonplastic, moderately consolidated, carbonate rich, caliche nodules, dry.
198–200	SW	Sand, brown (7.5YR 5/3), minor clay (5%) to coarse–grained sand, some 3/8 inch diameter gravel (10%), poorly sorted, subangular to rounded grains, moderately consolidated, carbonate rich, dry.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 6–22–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 45242.871
Easting: –5021.886
Elevation: 5388.129

PHELPS DODGE
TYRONE, INC.

Well 27-2005-05

Daniel B. Stephens & Associates, Inc.
9–28–05
JN ES05_0070

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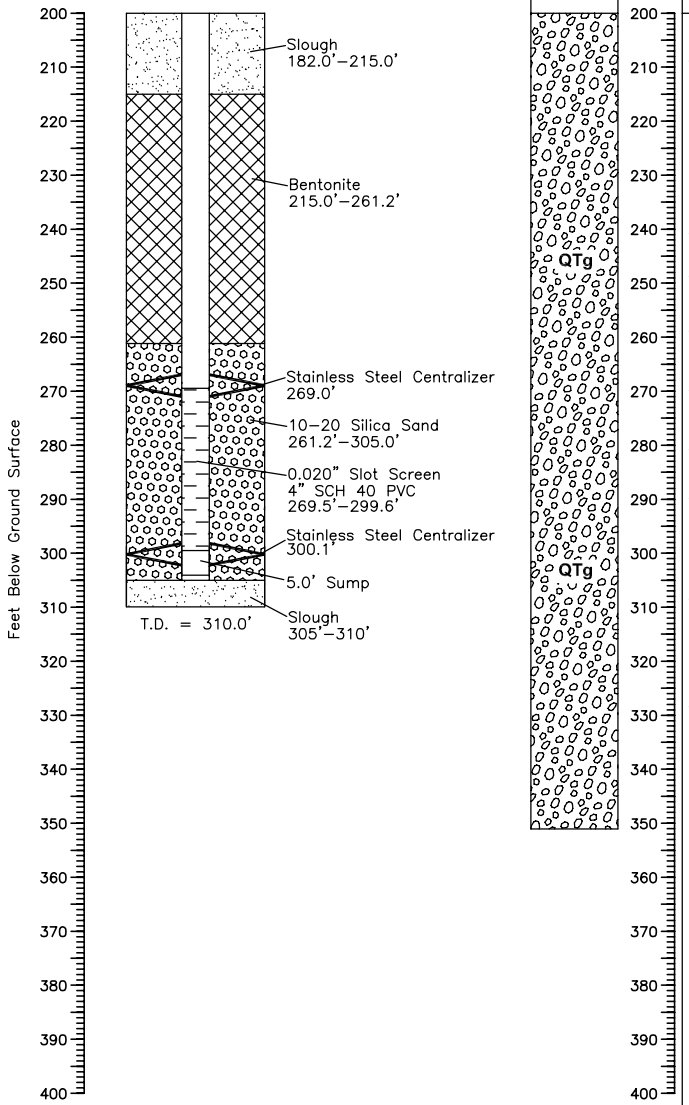

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
	208–210	SW	Sand, brown (7.5YR 5/3), minor clay (5%) to coarse-grained sand, some 3/8 inch diameter gravel (10%), poorly sorted, subangular to rounded grains, slight plasticity, moderately consolidated, carbonate rich, dry.
	218–221	SW	Sand with clay, brown (7.5YR 5/4), clay (10%) to coarse-grained sand, minor 3/8 inch diameter gravel (5%), poorly sorted, subangular to rounded grains, moderate plasticity, moderately consolidated, carbonate rich, caliche nodules, dry.
	228–231	SW	Sand with gravel, reddish brown (5YR 5/4), coarse sand with gravel up to 1 inch diameter, started injecting foam, few balls of clay but most fines washed away.
	240–242	SW	Sand with gravel, light reddish brown (5YR 6/3), coarse sand with gravel up to 3/4 inch diameter, poorly sorted, angular to subrounded clasts, moderately consolidated, mostly granitic detritus with some caliche.
	248–250	SW	Sand with gravel, light reddish brown (5YR 6/3), coarse sand with gravel up to 3/4 inch diameter, poorly sorted, angular to subrounded clasts, moderately consolidated, mostly granitic detritus with some caliche.
	258–260	SW	Sand with gravel, light reddish brown (5YR 6/3), mostly coarse sand with some gravel up to 3/8 inch diameter, poorly sorted, angular to subrounded clasts, moderately consolidated, mostly granitic detritus.
	269–270	SW	Sand with gravel and caliche nodules, light reddish brown (5YR 6/3), coarse sand with gravel up to 1 inch diameter, a lot of reddish brown caliche nodules.
	280–282	SW	Sand with gravel and caliche nodules, light reddish brown (5YR 6/3), coarse sand with gravel up to 3/8 inch diameter, a lot of reddish brown caliche nodules.
	289–290	SW	Sand with gravel and caliche nodules, light reddish brown (5YR 6/3), coarse sand with gravel up to 3/8 inch diameter, fewer reddish brown caliche nodules.
	299–301	SW	Sand with gravel and caliche nodules, light reddish brown (5YR 6/3), coarse sand to 1 inch diameter gravel, poorly sorted, angular to subrounded clasts, moderately consolidated, some caliche nodules.
	308–310	SW	Sand with gravel, light reddish brown (5YR 6/3), coarse sand to 3/4 inch diameter gravel, poorly sorted, angular to subrounded clasts, moderately consolidated, few clasts of caliche, mostly granitic detritus.
	318–321	SW	Sand with gravel, light reddish brown (5YR 6/3), coarse sand to 1/2 inch diameter gravel, poorly sorted, angular to subrounded clasts, moderately consolidated, few clasts of caliche, mostly granitic detritus.
	328–330	SW	Sand with gravel, light reddish brown (5YR 6/3), coarse sand to 1/2 inch diameter gravel, some mafic volcanic clasts, poorly sorted, angular to subrounded clasts, moderately consolidated, few clasts of caliche, mostly granitic detritus.
	338–341	SW	Sand with gravel, light reddish brown (5YR 6/3), coarse sand to 1/2 inch diameter gravel, some mafic volcanic clasts, poorly sorted, angular to subrounded clasts, moderately consolidated, little or no caliche, mostly granitic detritus.
	348–351	SW	Sand with gravel, light reddish brown (5YR 6/3), coarse sand to 1/2 inch diameter gravel, some mafic volcanic clasts, poorly sorted, angular to subrounded clasts, moderately consolidated, little or no caliche, mostly granitic detritus.
	360	–	No sample taken.
			T.D. = 360.0'

Note: Lithology from a boring advanced adjacent to well DP-27-2005-05 on 6-14-05. First well was plugged and abandoned due to casing failure.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 6-22-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters:10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 45242.871
Easting: -5021.886
Elevation: 5388.129

PHELPS DODGE
TYRONE, INC.

Well 27-2005-05

Daniel B. Stephens & Associates, Inc.
9-28-05 JN ES05_0070

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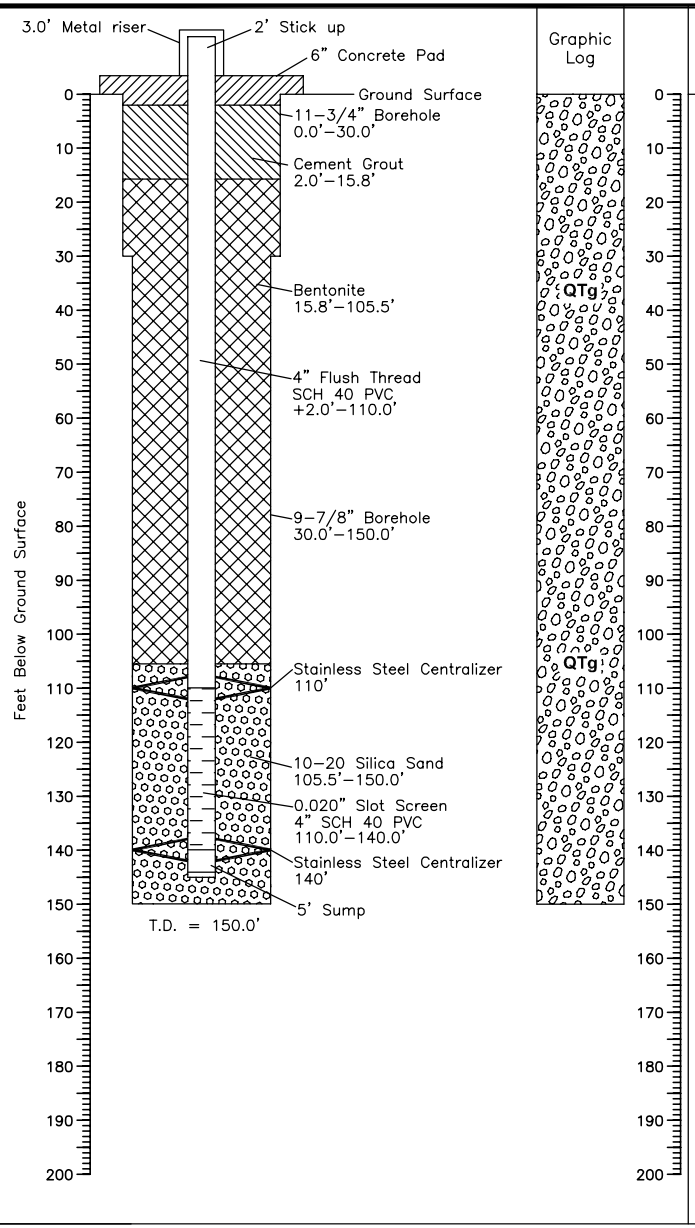

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
1–2	SW	Sand, yellowish brown (10YR 4/6), fine to coarse sand, poorly sorted, subangular, nonplastic, no reaction with HCl, dry.
9–10	SW	Sand, yellowish brown (10YR 4/6), fine to coarse sand, poorly sorted, subangular, nonplastic, no reaction with HCl, dry, hit a boulder at 9 feet.
19–20	SW	Sand with silt and clay (<20%), yellowish brown (10YR 4/6), fine- to coarse-grained, poorly sorted, subangular, slightly plastic, no reaction with HCl, dry.
29–30	SW	Sand with silt and clay (<20%), yellowish brown (10YR 4/6), fine- to coarse-grained, poorly sorted, subangular, slightly plastic, no reaction with HCl, dry.
39–40	SP	Very fine sand with silt and clay, brown (7.5YR 5/6), well sorted, subrounded, low plasticity, no reaction with HCl, moist.
49–50	–	No sample recovery.
59–60	SW	Medium sand with silt and clay, brown (7.5YR 5/6), poorly sorted, subangular, low plasticity, no reaction with HCl, slightly moist.
69–70	SP	Fine sand with silt and clay, brown (7.5YR 5/6), well sorted, subrounded, low to moderate plasticity, reaction with HCl, slightly moist.
79–80	SP	Fine sand with silt and clay, brown (7.5YR 5/6), well sorted, subrounded, low to moderate plasticity, reacts with HCl, slightly moist.
89–90	SP	Fine sand with silt and clay, brown (7.5YR 5/6), well sorted, subrounded, becoming more plastic with greater clay content, reacts with HCl, slightly moist.
99–100	SW	Fine to medium sand with silt and clay, gravel (<5%), brown (7.5YR 5/6), poorly sorted, subangular to subrounded, slightly plastic, reacts with HCl, slightly moist.
109–110	SP	Fine to medium sand (primarily fine sand) with silt and clay, brown (7.5YR 5/6), well sorted, subrounded, plastic, slightly moist, reacts with HCl.
114–115	SP	Fine to medium sand (primarily fine sand) with silt and clay, brown (7.5YR 5/6), well sorted, subrounded, plastic, reacts with HCl, cutting very moist to wet.
129–130	SP/GP	Medium to very coarse sand to fine gravel with minor amounts of clay (<5%), brown (7.5YR 5/6), well sorted, nonplastic, non-cohesive, wet, reacts with HCl.
139–140	SP/GP	Coarse sand to fine gravel, clasts include quartz, feldspars, and chlorite, various colors, well sorted, non-cohesive, wet, subangular, Fe-oxidation on clasts, clasts appear to represent quartz monzonite and may be chippings from a large boulder.
149–150	SP/GP	Coarse sand to coarse gravel, clasts include quartz, feldspars, and chlorite, various colors, well sorted, non-cohesive, wet, subangular, Fe-oxidation on clasts, clasts appear to represent quartz monzonite and may be chippings from a large boulder.

Geologist: J. Ayarbe
Driller: WDC Exploration
Date completed: 6-28-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 39758.090
Easting: -5036.531
Elevation: 5380.494

PHELPS DODGE
TYRONE, INC.

Well 27-2005-06

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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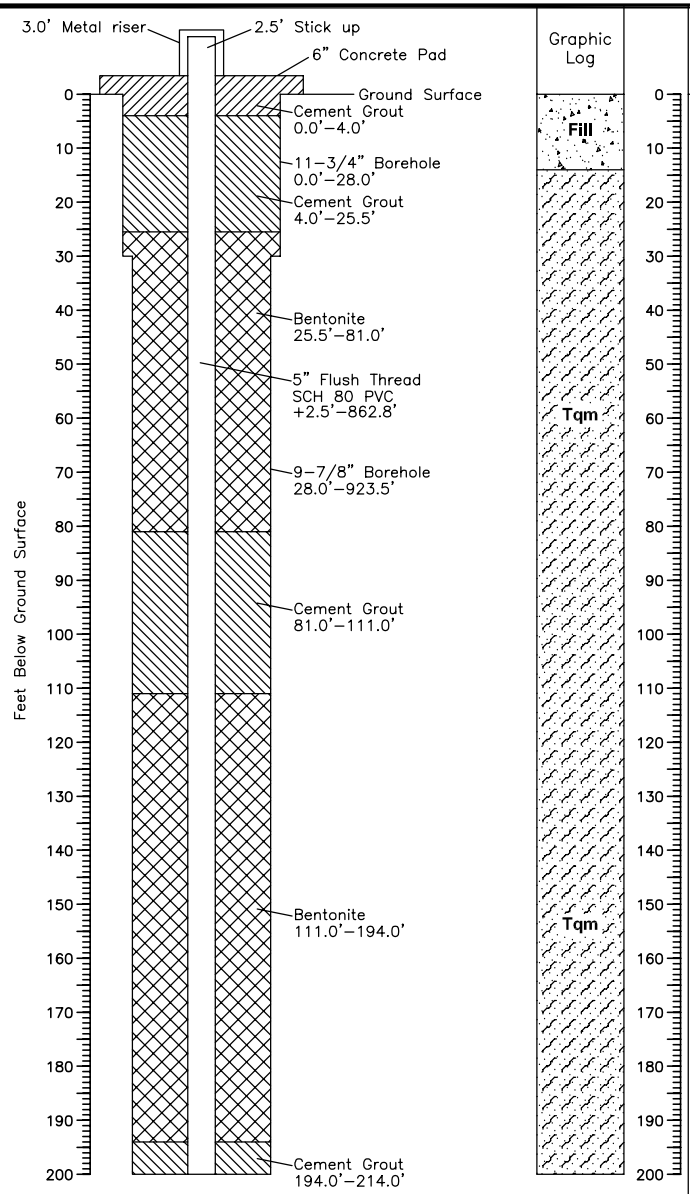

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
8–10	SW	Fill: sand with gravel and trace silt/clay.
8–10	SW	Fill: sand with gravel, brown (7.5YR 4/3), fine to coarse sand, trace silt/clay, poorly sorted, subangular to subrounded, 20% fine gravel (mostly quartz) is subangular and up to 15 mm diameter, moist. At 13–14 feet drilling into bedrock (Quartz monzonite)
18–20	Tqm	Quartz monzonite, pinkish gray (7.5YR 7/2) to white (7.5YR 8/1), rock fragments to 15 mm diameter and 15% fines in coarse sand fraction, mostly secondary quartz with sericite, trace biotite (slightly oxidized), pink and white feldspar minor, subangular, dry.
29–30	Tqm	Quartz monzonite, pinkish gray (5YR 7/2) to gray (5YR 6/1) and white (5YR 8/1), 60% quartz, 1 mm–thick quartz veins, 30% feldspar (pink and white), sericite, trace very fine biotite, rock chips mostly 5 mm diameter to 20 mm, subangular. Inject water at 40 feet.
40–42	Tqm	Quartz monzonite, pinkish gray (5YR 7/2) to gray (5YR 6/1) and white (5YR 8/1), 60% quartz, 1 mm–thick quartz veins, 30% feldspar (pink and white), sericite, trace very fine biotite, rock chips mostly 5 mm diameter to 20 mm diameter, subangular, 5% clay fraction dark red (2.5YR 4/8, wet), chips less than 10 mm diameter.
49–50	Tqm	Quartz monzonite, pinkish gray (5YR 7/2) to gray (5YR 6/1) and white (5YR 8/1), 60% quartz, 1 mm–thick quartz veins, 30% feldspar (pink and white), sericite, trace very fine biotite, rock chips mostly 5 mm diameter to 20 mm diameter, subangular, 5% clay fraction dark red (2.5YR 4/8, wet), chips less than 10 mm diameter.
59–60	Tqm	Quartz monzonite, weak red (10R 4/4) to gray, trace white (wet), rock chips less than 10 mm diameter, 5% clay fraction (light reddish brown 5YR 6/4, wet), 40% quartz, 50% feldspar, mostly pink/red, trace very fine biotite, trace Fe–oxide.
69–70	Tqm	Quartz monzonite, weak red (10R 4/4) to gray, trace white (wet), rock chips less than 10 mm diameter, 5% clay fraction (light reddish brown 5YR 6/4, wet), 40% quartz, 50% feldspar (equal amounts of white and pink), trace very fine biotite, slightly more Fe–oxide than above, chrysocolla.
79–80	Tqm	Quartz monzonite, weak red (10R 4/4) to gray, trace white (wet), rock chips less than 10 mm diameter, 30% silt/clay fraction, 40% quartz, 50% feldspar (equal amounts of white and pink), trace very fine biotite, Fe–oxide, light yellowish green mineral possibly jarosite.
89–90	Tqm	Quartz monzonite, very pale brown (10YR 7/3, dry), 80% clay/silt/fine sand fraction, 20% quartz monzonite chips to 8 mm diameter, pink feldspar minor (mostly white), dry.
99–100	Tqm	Quartz monzonite, very pale brown (10YR 8/2, dry), 80% clay/silt/fine sand fraction, 20% quartz monzonite is mostly quartz, white feldspar, jarosite (yellowish green), trace reddish brown Fe–oxide, dry.
109–110	Tqm	Quartz monzonite, dusky red (2.5YR 4/4, moist), 60% fines, 40% chips with slightly more pink feldspar and Fe–oxide as well as biotite, moist from water injection (injecting trace water for dust control).
119–120	Tqm	Quartz monzonite, light reddish brown (5YR 6/3, moist), 70% fines, 30% chips equal amounts of quartz and white feldspar, trace biotite, trace pink feldspar and Fe–oxide, trace jarosite/sericite, moist from injection.
129–130	Tqm	Quartz monzonite, pink (7.5YR 7/3, moist), 70% fines, 30% chips are equal amounts of quartz and white feldspar, trace biotite, trace pink feldspar and Fe–oxide, trace jarosite/sericite, moist from injection.
139–140	Tqm	Quartz monzonite, red (10R 5/6, moist), 70% fines, chips equal amounts of quartz and white feldspar, 15% pink feldspar, more biotite and Fe–oxide than above, trace jarosite/sericite, moist from injection, 35% fines.
149–150	Tqm	Quartz monzonite, yellowish red (5YR 5/6, moist), 70% fines, chips equal amounts of quartz and white feldspar, 5–10% pink feldspar, biotite, Fe–oxide, trace jarosite/sericite, several small chips of chrysocolla, moist from injection, 35% fines.
159–160	Tqm	Quartz monzonite, weak red (2.5YR 6/3, moist), 60% fines, 10–15% pink feldspar.
169–170	Tqm	Quartz monzonite, weak red (2.5YR 5/4, moist), 50% fines, chips equal amounts of white and pink feldspars, 30% quartz, trace biotite, Fe–oxide, chrysocolla, jarosite, moist from injection.
179–180	Tqm	Quartz monzonite, weak red (10R 4/4, dry) 25% fines, 75% chips, 20%(?) quartz, 75% mostly reddish feldspar, Fe–oxide, trace biotite, chips average 4–5 mm diameter.
189–190	Tqm	Quartz monzonite, reddish yellow (5YR 6/6, moist), 80% fines, rock chips equal amounts of white feldspar and quartz, yellowish brown Fe–oxide, minor pink feldspar, biotite, trace jarosite, moist from injection.
199–200	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), 80% fines, rock chips equal amounts of white feldspar and quartz, yellowish brown Fe–oxide, minor pink feldspar, biotite, trace jarosite, moist from injection.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 8–12–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 16443.680
Easting: 7648.220
Elevation: 6095.610

PHELPS DODGE
TYRONE, INC.

Well 166-2005-04

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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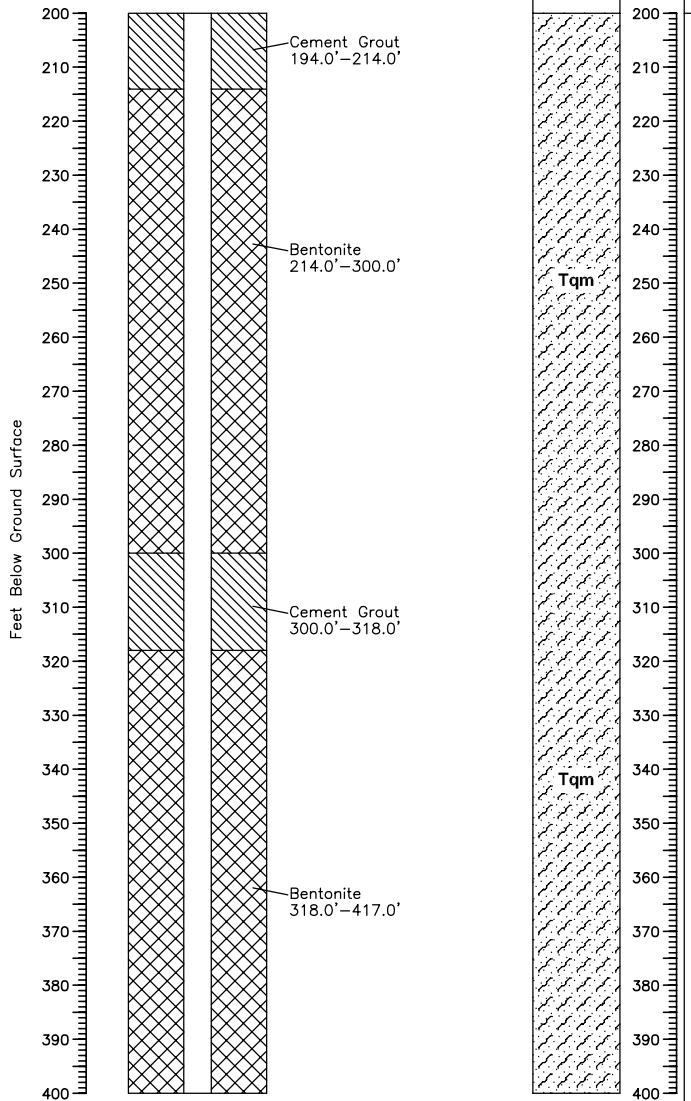

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
	209-210	Tqm	Quartz monzonite, weak red (2.5YR 6/4, moist), 80% fines, rock chips equal amounts of white feldspar and quartz, yellowish brown Fe-oxide, minor pink feldspar, biotite, trace jarosite, moist from injection.
	219-220	Tqm	Quartz monzonite, weak red (2.5YR 6/4, moist), 20% fines, rock chips equal amounts of white feldspar and quartz, very little Fe-oxide, minor pink feldspar, biotite, trace jarosite, trace chrysocolla, moist from injection.
	229-230	Tqm	Quartz monzonite, pinkish gray (5YR 7/2, moist), 80% fines, chips equal amounts of white feldspar and quartz, very little Fe-oxide, trace biotite appears less oxidized, chrysocolla more abundant, pink feldspar content slightly increasing, chips average 4-5 mm diameter.
	239-240	Tqm	Quartz monzonite, reddish brown (5YR 5/6, moist), 25% fines, chips equal amounts of white feldspar and quartz, slightly more Fe-oxide.
	249-250	Tqm	Quartz monzonite, pinkish gray (5YR 7/2, moist), 10% fines, chips equal amounts of white feldspar and quartz, very little Fe-oxide, no chrysocolla.
	259-260	Tqm	Quartz monzonite, pinkish gray (5YR 7/2, moist), 10% fines, chips equal amounts of white feldspar and quartz, very little Fe-oxide, no chrysocolla.
	269-270	Tqm	Quartz monzonite, pinkish gray (5YR 7/2, moist), 10% fines, chips equal amounts of white feldspar and quartz, very little Fe-oxide, no chrysocolla.
	279-280	Tqm	Quartz monzonite, weak red (2.5YR 6/4, moist), 10% fines, rock chips (up to 5 mm diameter) equal amounts of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, moist from injection.
	289-290	Tqm	Quartz monzonite, red (10R 5/6, moist), 60% fines, rock chips (up to 5 mm diameter) equal amounts of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, moist from injection.
	299-300	Tqm	Quartz monzonite, red (10R 5/6, moist), 70% fines, rock chips (up to 5 mm diameter) equal amounts of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, moist from injection.
	309-310	Tqm	Quartz monzonite, red (10R 5/6, moist), 70% fines, rock chips (up to 5 mm diameter) equal amounts of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, moist from injection.
	319-320	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), 70% fines, rock chips (up to 5 mm diameter) equal amounts of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, moist from injection.
	329-330	Tqm	Quartz monzonite, red (2.5YR, moist), 10% fines, rock chips (up to 5 mm diameter) equal amounts of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, moist from injection.
	339-340	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), 10% fines, rock chips (up to 10 mm diameter) equal amounts of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, trace fine pyrite, moist from injection.
	349-350	Tqm	Quartz monzonite, red (10R 5/6, moist), 35% fines, chips to 6 mm diameter equal amount of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, trace fine pyrite, moist from injection.
	359-360	Tqm	Quartz monzonite, red (10R 5/6, moist), 20% fines, chips to 6 mm diameter equal amount of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, moist from injection.
	369-370	Tqm	Quartz monzonite, red (10R 5/6, moist), 20% fines, chips to 6 mm diameter equal amount of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, chrysocolla, moist from injection.
	379-380	Tqm	Quartz monzonite, red (10R 5/6, moist), 20% fines, chips to 6 mm diameter equal amount of quartz and white feldspar, minor pink feldspar, Fe-oxide more abundant and yellowish brown and reddish brown, trace very fine biotite, moist from injection.
	389-390	Tqm	Quartz monzonite, red (2.5YR 5/6, wet), 15% fines, quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace biotite, trace pyrite, Fe-oxide reddish brown, wet from injection, chips average 5-8 mm diameter.
	399-400	Tqm	Quartz monzonite, red (2.5YR 5/6, wet), 15% fines, quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace biotite, trace pyrite, Fe-oxide reddish brown, wet from injection, chips to 5 mm diameter.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 8-12-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 16443.680
Easting: 7648.220
Elevation: 6095.610

PHELPS DODGE
TYRONE, INC.

Well 166-2005-04

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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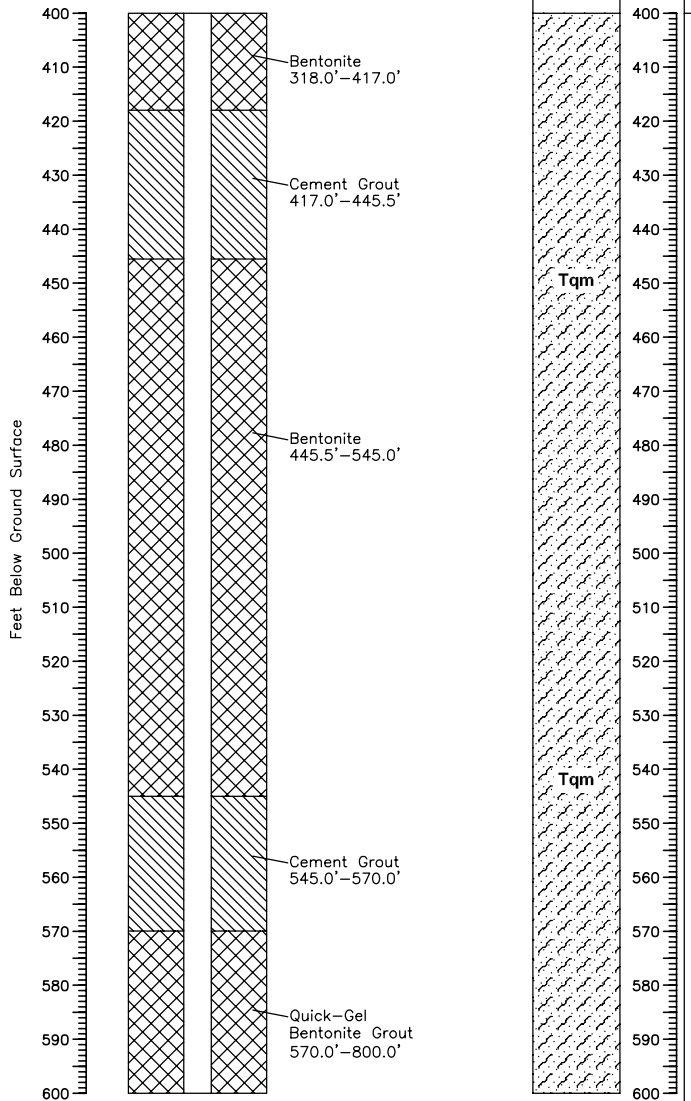

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
Tqm	409-410	Tqm	Quartz monzonite, red (2.5YR 5/6, wet), 15% fines, quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace biotite, trace pyrite, Fe-oxide reddish brown, wet from injection, chips to 5 mm diameter.
	419-420	Tqm	Quartz monzonite, red (2.5YR 5/6, wet), 15% fines, quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace biotite, very little pyrite, very little jarosite, chrysocolla, Fe-oxide reddish brown, wet from injection, chips to 5 mm diameter.
	429-430	Tqm	Quartz monzonite, red (2.5YR 5/6, wet), 15% fines, quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace biotite, very little pyrite, very little jarosite, chrysocolla, Fe-oxide reddish brown, wet from injection, chips to 5 mm diameter.
	439-440	Tqm	Quartz monzonite, red (2.5YR 5/8, moist), 80% fines, chips 1-4 mm diameter, rounded, 2:1 ratio of quartz to white feldspar, pink feldspar minor, traces of very small biotite, trace pyrite, some Fe-oxide reddish brown, moist from injection.
	449-450	Tqm	Quartz monzonite, light brown (7.5YR 6/4, moist), 80% fines, chips 1-4 mm diameter, rounded, 2:1 ratio of quartz to white feldspar, pink feldspar minor, traces of very small biotite, trace pyrite, very little Fe-oxide yellowish brown, moist from injection.
	459-460	Tqm	Quartz monzonite, light brown (7.5YR 6/4, moist), 80% fines, chips 1-4 mm diameter, rounded, 2:1 ratio of quartz to white feldspar, pink feldspar minor, traces of very small biotite, trace pyrite, very little Fe-oxide yellowish brown, moist from injection.
	469-470	Tqm	Quartz monzonite, light brown (7.5YR 6/4, moist), 80% fines, chips 1-4 mm diameter, rounded, 2:1 ratio of quartz to white feldspar, pink feldspar minor, traces of very small biotite, trace pyrite, very little Fe-oxide yellowish brown, moist from injection.
	479-480	Tqm	Quartz monzonite, light brown (7.5YR 6/4, moist), 15% fines, chips 1-4 mm diameter, rounded, 2:1 ratio of quartz to white feldspar, pink feldspar minor, traces of very small biotite, trace pyrite, very little Fe-oxide yellowish brown, moist from injection.
	489-490	Tqm	Quartz monzonite, light brown (7.5YR 6/4, moist), 75% fines, chips 1-4 mm diameter, rounded, 2:1 ratio of quartz to white feldspar, pink feldspar minor, traces of very small biotite, trace pyrite, very little Fe-oxide yellowish brown, moist from injection.
	499-500	Tqm	Quartz monzonite, light brown (7.5YR 6/4, moist), quartz and white feldspar at 2:1 ratio, very little yellowish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 85% fines and 15% very small chips, small chip chrysocolla.
	509-510	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 40% fines and 60% very small chips.
	519-520	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 40% fines and 60% very small chips.
	529-530	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 40% fines and 60% very small chips.
Tqm	539-540	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 10% fines, 0.5% chrysocolla.
	549-550	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 10% fines, 0.5% chrysocolla.
	559-560	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 60% fines, 0.5% chrysocolla.
	569-570	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 50% fines, 0.5% chrysocolla.
	579-580	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 50% fines, 0.5% chrysocolla.
	589-590	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 50% fines, less chrysocolla.
	599-600	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 65% fines, less chrysocolla.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 8-12-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 16443.680
Easting: 7648.220
Elevation: 6095.610

PHELPS DODGE
TYRONE, INC.

Well 166-2005-04

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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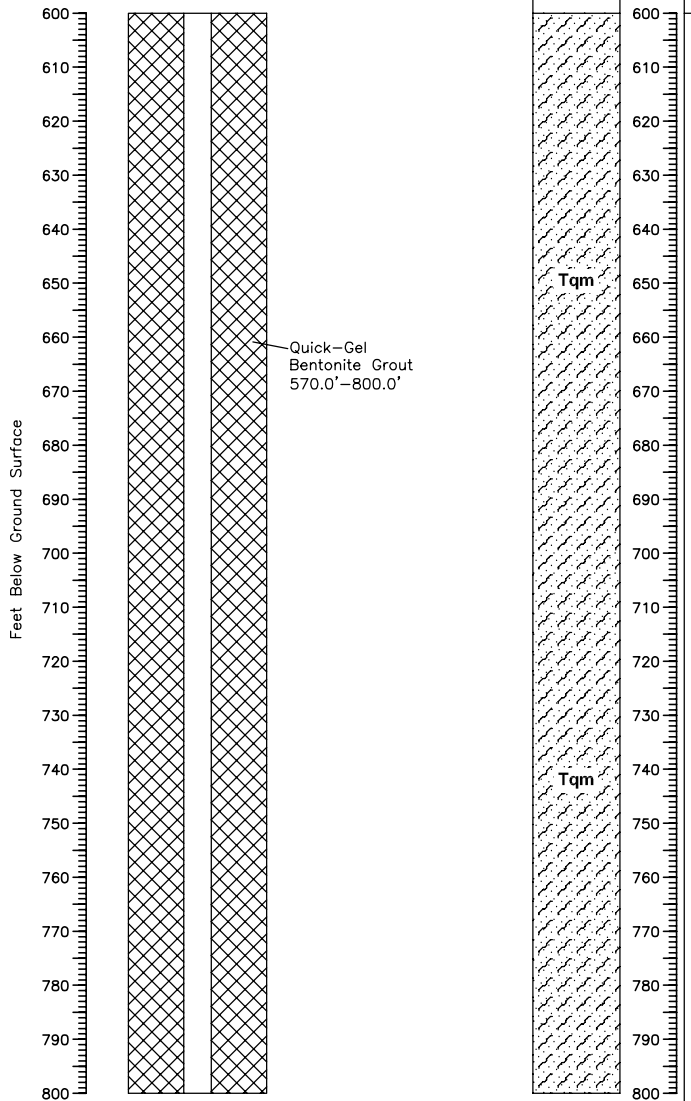

Feet Below Ground Surface	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
600			
610	609-610	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, very little reddish brown Fe-oxide, trace pink feldspar, trace biotite, moist from injection, 65% fines, less chrysocolla.
620	619-620	Tqm	Quartz monzonite, red (2.5YR 5/6, moist), quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace very fine biotite, chrysocolla, trace Fe-oxide reddish brown, moist from injection, 40% fines.
630	629-630	Tqm	Quartz monzonite, red (10R 5/6, wet), quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace very fine biotite, chrysocolla, trace Fe-oxide reddish brown, wet from injection, 40% fines.
640	639-640	Tqm	Quartz monzonite, red (10R 5/6, wet), quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace very fine biotite, chrysocolla, trace Fe-oxide reddish brown, wet from injection, 25% fines.
650	649-650	Tqm	Quartz monzonite, red (10R 5/6, wet), quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace very fine biotite, chrysocolla, trace Fe-oxide reddish brown, wet from injection, 25% fines.
660	659-660	Tqm	Quartz monzonite, red (10R 5/6, wet), quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace very fine biotite, chrysocolla, trace Fe-oxide reddish brown, wet from injection, 5% fines.
670	669-670	Tqm	Quartz monzonite, red (10R 5/6, wet), quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace very fine biotite, chrysocolla, trace Fe-oxide reddish brown, wet from injection, 30% fines.
680	679-680	Tqm	Quartz monzonite, dusky red (2.5YR 4/4, wet), quartz and white feldspar at 2:1 ratio, trace pink feldspar, trace very fine biotite, chrysocolla, trace Fe-oxide reddish brown, dark mineral possibly hornblende, wet from injection, 20% fines.
690	689-690	Tqm	Quartz monzonite, dusky red (2.5YR 4/4, wet), 10% fines, 30% quartz, 20% white feldspar, 40% pink/red feldspar, trace biotite, dark mineral possibly hornblende, slightly oxidized, trace chrysocolla and Fe-oxide (reddish brown), sericite, wet from injection, chips to 15 mm diameter.
700	699-700	Tqm	Quartz monzonite, weak red (2.5YR 5/4, wet), 20% fines, mostly quartz, some white and trace pink feldspar, trace biotite, possibly hornblende, chips size of coarse sand.
710	709-710	Tqm	Quartz monzonite, reddish brown (5YR 5/4, wet), 10% fines, 90% rock chips up to 25 mm diameter, possibly indicating fracture zone, 60% quartz, 20-30% white feldspar and trace pink feldspar, trace biotite, chrysocolla, pyrite, trace Fe-oxide yellowish brown, wet from injection.
720	719-720	Tqm	Quartz monzonite, light brown (7.5YR 6/4), 20% fines, chips size of coarse sand, 60% quartz, 20-30% white feldspar and trace pink feldspar, trace biotite, chrysocolla, trace Fe-oxide yellowish brown, wet from injection.
730	729-730	Tqm	Quartz monzonite, light brown (7.5YR 6/4), 5% fines, chips up to 10 mm diameter but mostly the size of coarse sand, 60% quartz, 20-30% white feldspar and trace pink feldspar, trace biotite, chrysocolla, trace Fe-oxide yellowish brown, wet from injection. At 732-738 feet, very soft drilling.
740	739-740	Tqm	Quartz monzonite, dark red (2.5YR 4/8, wet), 25% fines, 75% chips in coarse sand fraction, mostly quartz.
750	749-750	Tqm	Quartz monzonite, dark red (2.5YR 4/8, wet), 25% fines, 75% chips in coarse sand fraction, mostly quartz.
760	759-760	Tqm	Quartz monzonite, reddish yellow (5YR 7/8, dry), 30% fines, mostly quartz.
770	769-770	Tqm	Quartz monzonite, strong brown (7.5YR 4/6, moist), 30% fines, mostly quartz.
780	779-780	Tqm	Quartz monzonite, light yellowish brown (10YR 6/4, moist), 25% fines, mostly quartz.
790	789-790	Tqm	Quartz monzonite, light yellowish brown (10YR 6/4, wet), 25% fines, mostly quartz.
800	799-800	Tqm	Quartz monzonite, light yellowish brown (10YR 6/4, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 8-12-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 16443.680
Easting: 7648.220
Elevation: 6095.610

PHELPS DODGE
TYRONE, INC.

Well 166-2005-04

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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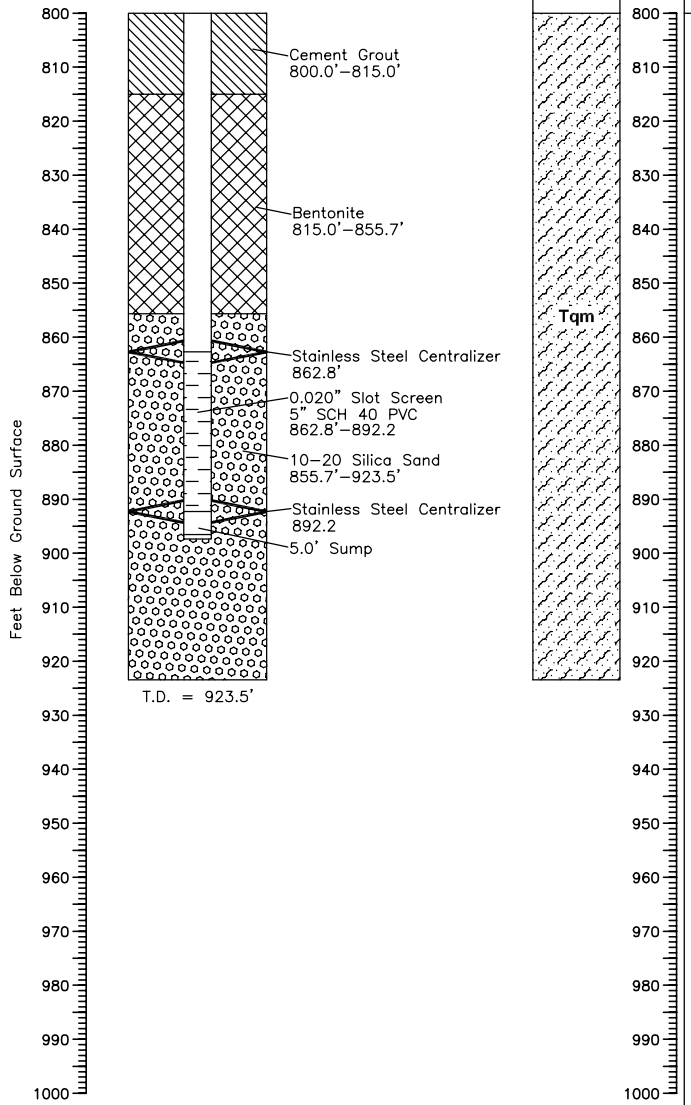

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
809-810	Tqm	Quartz monzonite, yellowish red (5YR 5/6, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
819-820	Tqm	Quartz monzonite, yellowish red (5YR 5/6, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
829-830	Tqm	Quartz monzonite, yellowish red (5YR 5/6, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
839-840	Tqm	Quartz monzonite, yellowish red (5YR 5/6, wet), 20% fines and 80% rock chips the size of coarse sand (slightly coarser than above), majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
849-850	Tqm	Quartz monzonite, red (2.5YR 5/6, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
859-860	Tqm	Quartz monzonite, brownish yellow (10YR 6/4, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide is yellow/brown, wet from injection, grains subrounded, poorly sorted.
869-870	Tqm	Quartz monzonite, brownish yellow (10YR 6/4, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
879-880	Tqm	Quartz monzonite, reddish yellow (7.5YR 6/6, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
889-890	Tqm	Quartz monzonite, light brown (7.5YR 6/4, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
899-900	Tqm	Quartz monzonite, light brown (7.5YR 6/4, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
909-910	Tqm	Quartz monzonite, dark red (2.5YR 4/6, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.
919-920	Tqm	Quartz monzonite, dark red (2.5YR 4/6, wet), 20% fines and 80% rock chips the size of coarse sand, majority quartz, some white feldspar, trace very small biotite, trace Fe-oxide yellow/brown, wet from injection, grains subrounded, poorly sorted.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 8-12-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 16443.680
Easting: 7648.220
Elevation: 6095.610

PHELPS DODGE
TYRONE, INC.

Well 166-2005-04

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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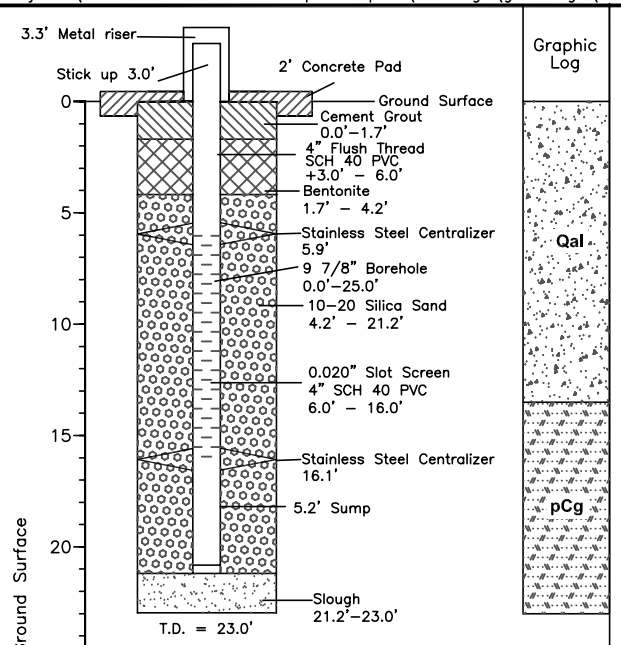

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–2	SM	Silty sand with gravel, brown (10YR 5/3), very fine to medium sand with 15–20% silt, trace clay, 15% gravel fragments to 35 mm diameter, poorly sorted, subangular, soft consistency, dry.
4–6	SM	Silty sand with gravel; brown (10YR 5/3), as above, with 20% gravel, dry.
8–10	SM	Silty sand, as above, with 5% small gravel, dry; at 9.8 feet granitic boulder.
10–12	SM	Silty sand, brown (10YR 5/3), as above with 5% small gravel, dry.
13.5	pCg	Granite, weathered, drilling is still fairly soft.
14.5–18	pCg	Granite, pink (7.5YR 7/3) (dry) to light brown (7.5YR 6.3), mostly sand grain sized cuttings, estimated 40% quartz, mostly K–feldspar, 5% biotite, dry.
18–20	pCg	Granite, color as above, fragments to 25 mm in size, 40% quartz, mostly K–feldspar, feldspar is sericitized, 5 to10% very fine dark mineral with some biotite and possibly hornblende in aggregates, dry.
22–23	pCg	Granite, color as above, fragments to 25 mm in size, 40% quartz, mostly K–feldspar, feldspar is sericitized, 5 to10% very fine dark mineral with some biotite and possibly hornblende in aggregates, dry.

Geologist: L. Rought
Driller: Badger Western
Date completed: 6–17–06

Drilling method: Air Rotary
Bit diameter: 9–7/8" O.D.
Sampling device: Cuttings

Northing: 6178.278
Easting: 2776.146
Elevation: 6162.255

PHELPS DODGE TYRONE, INC.

Well 166-2006-01

Daniel B. Stephens & Associates, Inc.

3–22–07 JN LT05.0069

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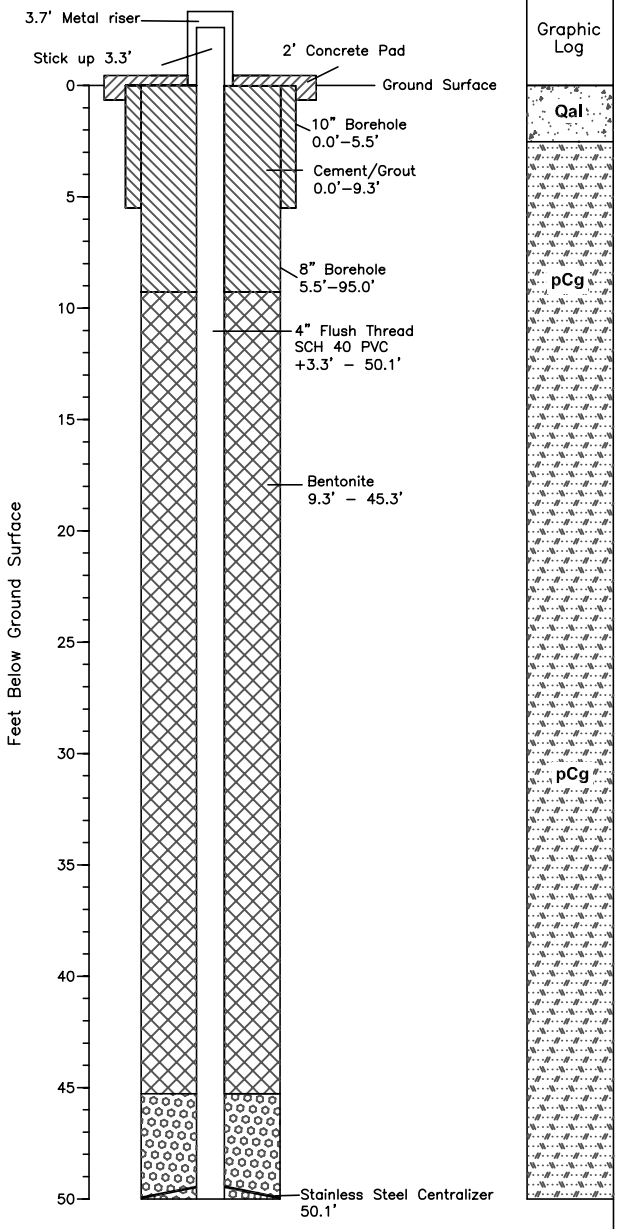


Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–2.5	SW–SM	Sand with silt and gravel, brown (10YR 4/3), very fine to coarse sand with 20% gravel to 2–inch diameter and 15 to 20% silt/clay, gravel granitic, sediment is quartz, biotite, feldspar, poorly sorted, subrounded, soft consistency, moist and saturated at depth of 1.5 feet.
2.5	pCg	Granite, light yellowish brown (10YR 6/4) (wet) to very pale brown and brownish yellow, trace red, rock fragments from 1– to 25–millimeter diameter, approximately 60% quartz, 30% feldspar (K–feldspar pink and whitish altered feldspar), trace biotite, abundant iron staining, yellowish brown, a few pieces of red–stained fragments (iron oxide).
8–10	pCg	Granite, as above, fragments mostly 2 to 3 millimeters, pink K–feldspar minor occurance, still abundant iron staining, moist.
18–20	pCg	Granite, light gray (5YR 7/1) to pink (5YR 7/3), dry, fragment size 1 to 5 millimeters, 40 to 50 % quartz, K–feldspar and plagioclase, 5 to 10 % very small biotite, dry.
28–30	pCg	Granite, as above, sericitic alteration, dry, at 34 feet pink K–feldspar becomes more abundant again, color change noticeable in cuttings.
38–40	pCg	Granite, as above, dry, white powdery clay minerals more abundant.
44–47	pCg	Granite color change to red (10R 4/8) very distinct.
48–50	pCg	Granite color change to red (10R 4/8) very distinct.

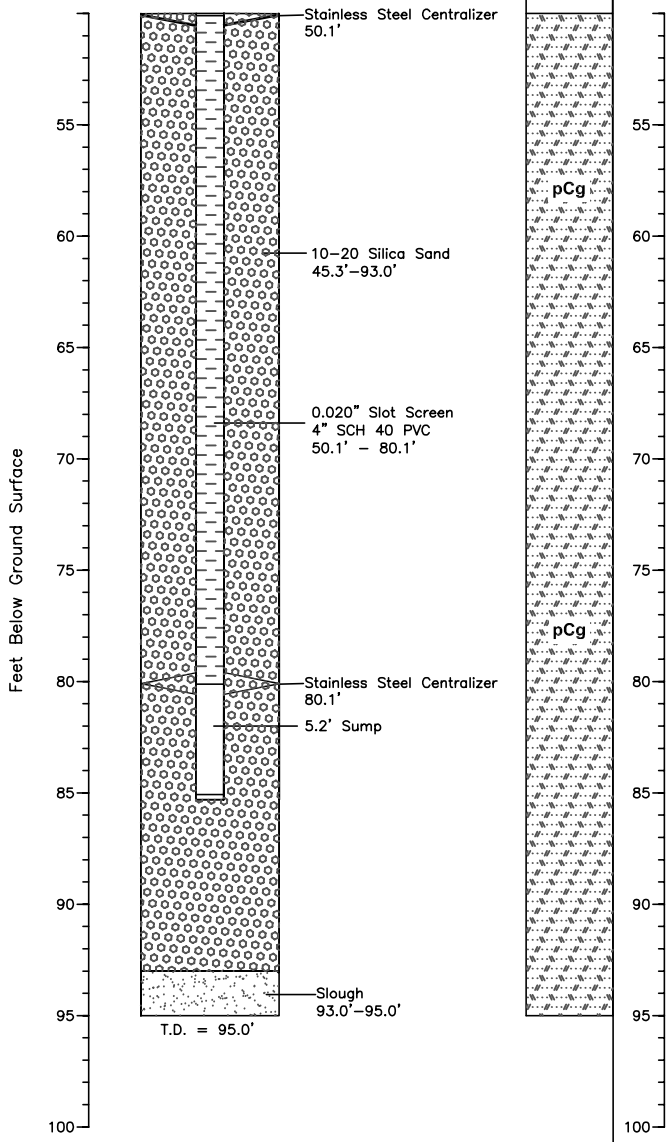
Geologist: L. Rought
Driller: Badger Western
Date completed: 6–20–06

Drilling method: Air Rotary
Bit diameters: 10", 8" O.D.
Sampling device: Cuttings
Steel suface casing: Casing advanced to the extent of the 10" borehole

Northing: 12260.467
Easting: 3048.210
Elevation: 5938.727

PHELPS DODGE TYRONE, INC.
Well 166-2006-02

Daniel B. Stephens & Associates, Inc.
3–22–07
JN LT05.0069



Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
	54–55	pCg	Granite, more yellowish brown iron staining on fracture surfaces, dry.
pCg	58–60	pCg	Granite color change to red (10R 4/8) very distinct; at 60 feet cuttings start to feel slightly moist, less dust in air.
	63–65	pCg	Granite white, powdery (clay) minerals more abundant, cuttings are moist.
	65–70	pCg	Granite, light yellowish brown (10YR 6/4) wet to brownish yellow, fragments mostly 5 to 15 millimeters indicating fractured rock, iron staining abundant, wet/saturated.
pCg	78–80	pCg	Granite, as above, smaller fragments mostly 2 to 4 millimeters.
	88–90	pCg	Granite, as above, smaller fragments mostly 2 to 4 millimeters.
	93–95	pCg	Granite, as above, smaller fragments mostly 2 to 4 millimeters.

Geologist: L. Rought
Driller: Badger Western
Date completed: 6–20–06

Drilling method: Air Rotary
Bit diameters: 10", 8" O.D.
Sampling device: Cuttings
Steel suface casing: Casing advanced to the extent of the 10" borehole

Northing: 12260.467
Easting: 3048.210
Elevation: 5938.727

PHELPS DODGE TYRONE, INC.
Well 166-2006-02

Daniel B. Stephens & Associates, Inc.
3–22–07
JN LT05.0069

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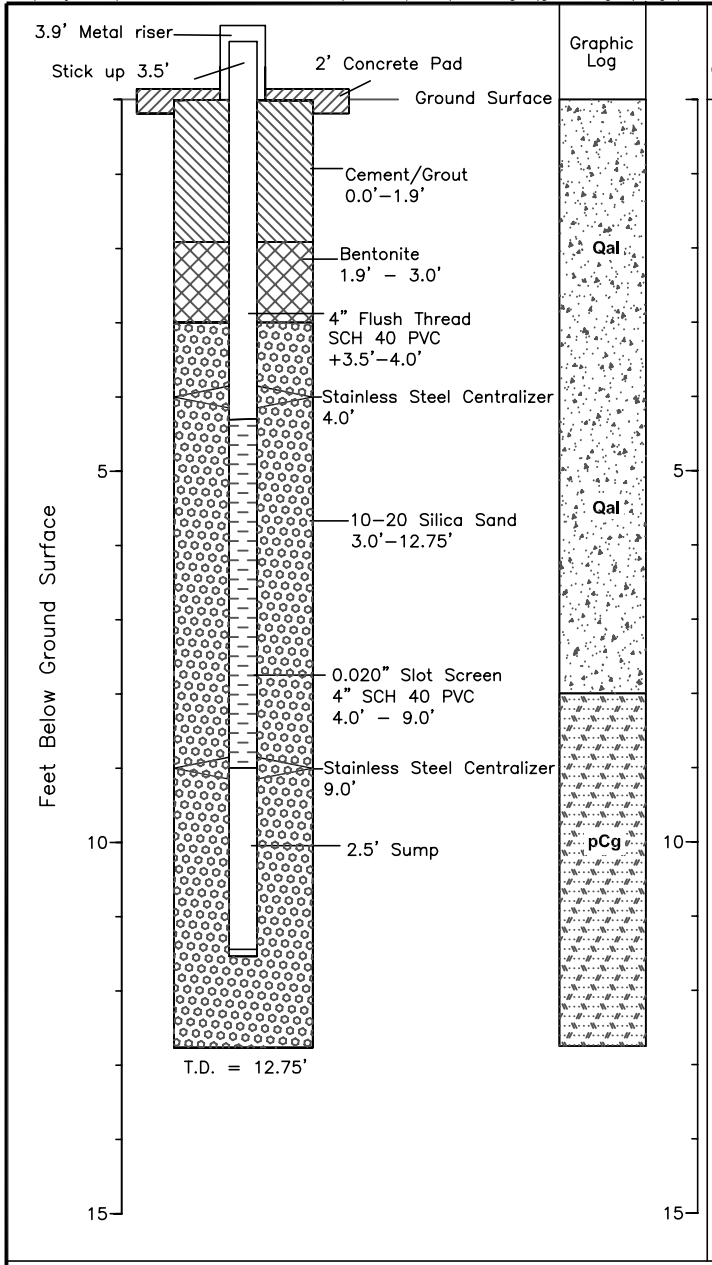

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–2	GW	Gravel with sand, brown (7.5 YR 5/3), gravel fragments to 2–inch diameter with 35% very fine to coarse sand, 5% silt/clay, gravel granitic, poorly sorted, soft consistency, subangular, very moist and wet at 1–foot depth.
2–4	GC	Clayey gravel with sand, brown (7.5 YR 5/3), gravel fragments to 1.5–inch diameter (granitic) with 20% very fine to coarse sand (quartz, feldspar, small mica flakes) and 20% clay/silt, soft consistency, subrounded to subangular, saturated, poorly sorted, wet.
8–9	pCg	Granite, brown (7.5YR 5/4), wet, brownish yellow, granite fragments to 3–cm diameter, 40 to 50% quartz, mostly K–feldspar, plagioclase, iron oxide, less than 5% small biotite, trace of sand and clay (driller puts contact with alluvium at 8.0–8.3 feet), moist to wet.
9–10	pCg	Granite, brown (7.5YR 5/4), wet, brownish yellow, granite fragments to 3–cm diameter, 40 to 50% quartz, mostly K–feldspar, plagioclase, iron oxide, less than 5% small biotite, trace of sand and clay, moist to wet.
10–12	pCg	Granite, brown (7.5YR 5/4), wet, brownish yellow, granite fragments to 3–cm diameter, 40 to 50% quartz, mostly K–feldspar, plagioclase, iron oxide, less than 5% small biotite, trace of sand and clay, moist to wet.

Geologist: L. Rought
Driller: Badger Western
Date completed: 6–21–06

Drilling method: Air Rotary
Bit diameter: 9–7/8" O.D.
Sampling device: Cuttings

Northing: 12200.159
Easting: 3030.266
Elevation: 5944.668

PHELPS DODGE TYRONE, INC.

Well 166-2006-03

Daniel B. Stephens & Associates, Inc.
3–22–07
JN LT05.0069

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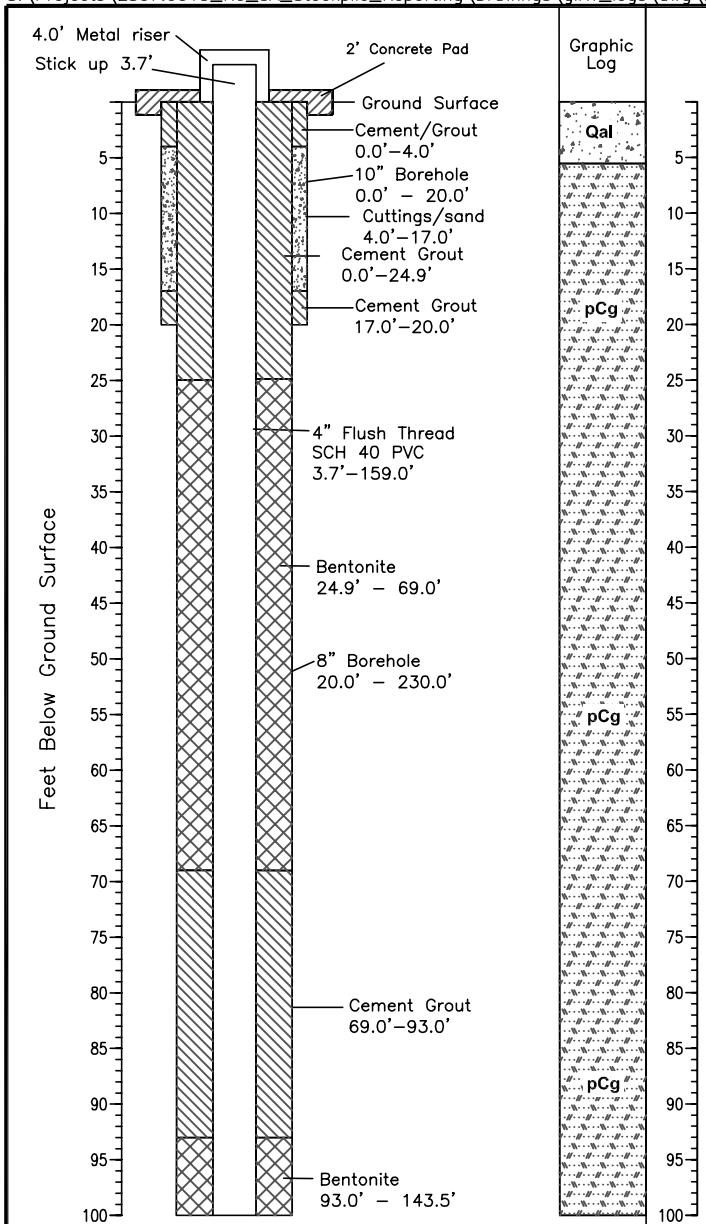


Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–10	GW	Gravel with sand, brown (7.5YR 4/3), fine–grained sand to 2–inch diameter gravel, poorly sorted, subangular to subrounded clasts, unconsolidated, moist, clasts are granitic detritus; at 4 feet becomes sandier. At 6 feet encounter granitic bedrock, have water in borehole at 6 feet, rose to 3 feet.
10–12	pCg	Granite light brownish gray (10YR 6/2), 40% plagioclase, 30% K–feldspar, 25% quartz, 5% mafics and mica, strongly lithified, dry to damp.
18–20	pCg	Granite light brownish gray (10YR 6/2), 40% plagioclase, 30% K–feldspar, 25% quartz, 5% mafics and mica, strongly lithified, moist from alluvial water entering borehole from above.
28–30	pCg	Granite, yellowish brown (10YR 5/4), 30% plagioclase, 40% K–feldspar, sericitized and bleached white, 25% quartz, 5% mafic, mostly biotite, strongly lithified, damp to moist.
38–40	pCg	Granite, pale brown (10YR 5/3), 45% plagioclase, 40% K–feldspar, some sericitized, some fresh, 15% quartz, minor mafics and jarosite, strongly lithified, dry.
48–55	pCg	Granite, light gray (10YR 7/1), 30% plagioclase, 40% K–feldspar, mostly sericitized, 25% quartz, 5% mafics and jarosite, strongly lithified, dry; at 53–54.5 feet softened up and moist, possible fracture.
58–60	pCg	Granite, light brownish gray (10YR 6/2), 25% plagioclase, 45% K–feldspar, minor sericitization, mostly fresh, 25% quartz, 5% mafics and jarosite, minor hematite, trace K–feldspar altered, strongly lithified, dry; at 63 feet zone K–feldspar altered, moist.
68–70	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar, fresh and pink, 20% quartz, 10% mafic (hornblende), very strongly lithified, dry, very unaltered.
78–80	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar, fresh and pink, 20% quartz, 10% mafic (hornblende), very strongly lithified, dry, very unaltered, some sericitization, more jarosite.
88–90	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar, fresh and pink, 20% quartz, 10% mafic (hornblende), very strongly lithified, dry, very unaltered, some sericitization, more jarosite.
98–100	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar, fresh and pink, 20% quartz, 10% mafic (hornblende), very strongly lithified, dry, very unaltered, some sericitization, more jarosite.

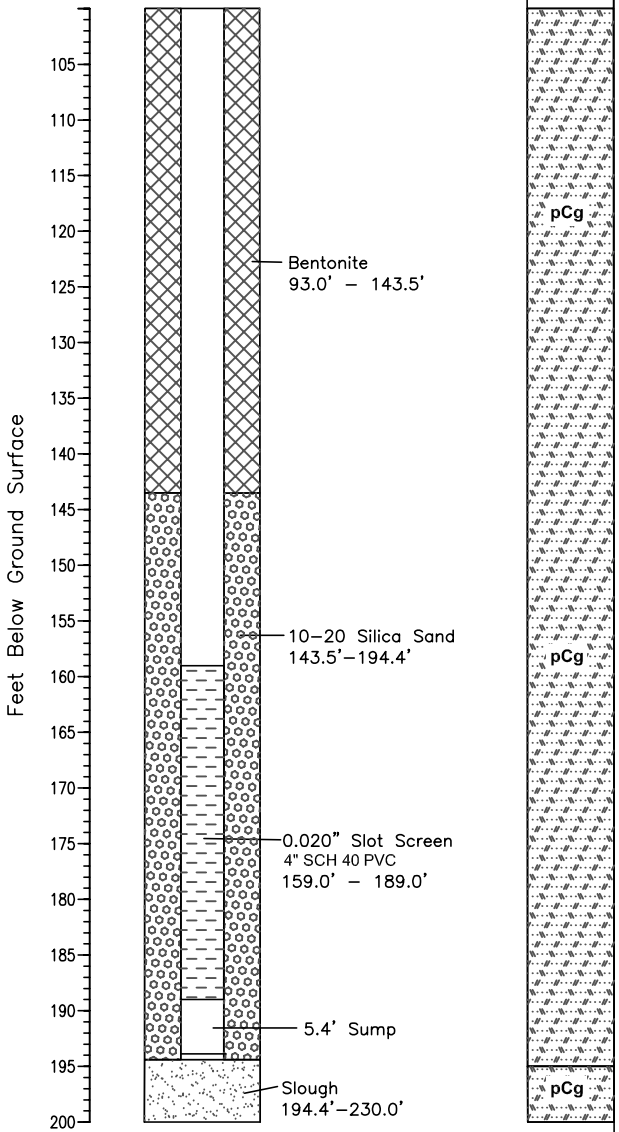
Geologist: C. Pigman
Driller: Badger Western
Date completed: 7–01–06

Drilling method: Air Rotary
Bit diameters: 10", 8" O.D.
Sampling device: Cuttings
Steel suface casing: Casing advanced to the extent of the 10" borehole

Northing: 14572.106
Easting: 2068.65
Elevation: 5843.002

PHELPS DODGE TYRONE, INC.
Well 166-2006-05

Daniel B. Stephens & Associates, Inc.
3–22–07
JN LT05.0069



Graphic Log	Sample Interval (ft bgs)	USCS Symbol or Rock Unit	Comments and Lithology
	108–110	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar, fresh and pink, 20% quartz, 10% mafic (hornblende), very strongly lithified, dry, very unaltered, some sericitization, more jarosite.
pCg	118–120	pCg	Granite, pinkish gray (7.5YR 7/2), 30% plagioclase, 45% K–feldspar (fresh and pink), 15% quartz, 10% mafics (mostly hornblende), strongly lithified, dry.
	128–130	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar (mostly fresh and pink), 20% quartz, 10% mafics (hornblende), strongly lithified, dry.
	138–140	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar (mostly fresh and pink), 20% quartz, 10% mafics (hornblende), strongly lithified, dry.
	148–150	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar (mostly fresh and pink), 20% quartz, 10% mafics (hornblende), strongly lithified, dry.
pCg	158–160	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar (mostly fresh and pink), 20% quartz, 10% mafics (hornblende), strongly lithified, dry.
	168–170	pCg	Granite, light brownish gray (10YR 6/2), 30% plagioclase, 40% K–feldspar (mostly fresh and pink), 20% quartz, 10% mafics (hornblende), strongly lithified, dry.
	176–180	pCg	Granite, pinkish gray (7.5YR 7/2), 25% plagioclase, 40% K–feldspar, fresh and pink, 25% quartz, 10% mafics, mostly hornblende, strongly lithified, injecting water, possible fracture at 176 feet making water, softer drilling from 176–180 feet.
	188–190	pCg	Granite, reddish gray (5YR 5/2), wet, 30% plagioclase, 40% K–feldspar, 20% quartz, 10% mafics (hornblende), strongly lithified, saturated.
pCg	198–200	pCg	Mineralized granite, greenish gray gley (5/1), 20% plagioclase, 35% K–feldspar, 15% quartz, 15% mafics, hornblende, possibly magnetite, 10% chrysocolla, 5% K–feldspar altered, strongly lithified, saturated.

Geologist: C. Pigman
Driller: Badger Western
Date completed: 7–01–06

Drilling method: Air Rotary
Bit diameters: 10", 8" O.D.
Sampling device: Cuttings
Steel suface casing: Casing advanced to the extent of the 10" borehole

Northing: 14572.106
Easting: 2068.65
Elevation: 5843.002

PHELPS DODGE TYTONE, INC.
Well 166-2006-05

Daniel B. Stephens & Associates, Inc.
3–22–07
JN LT05.0069

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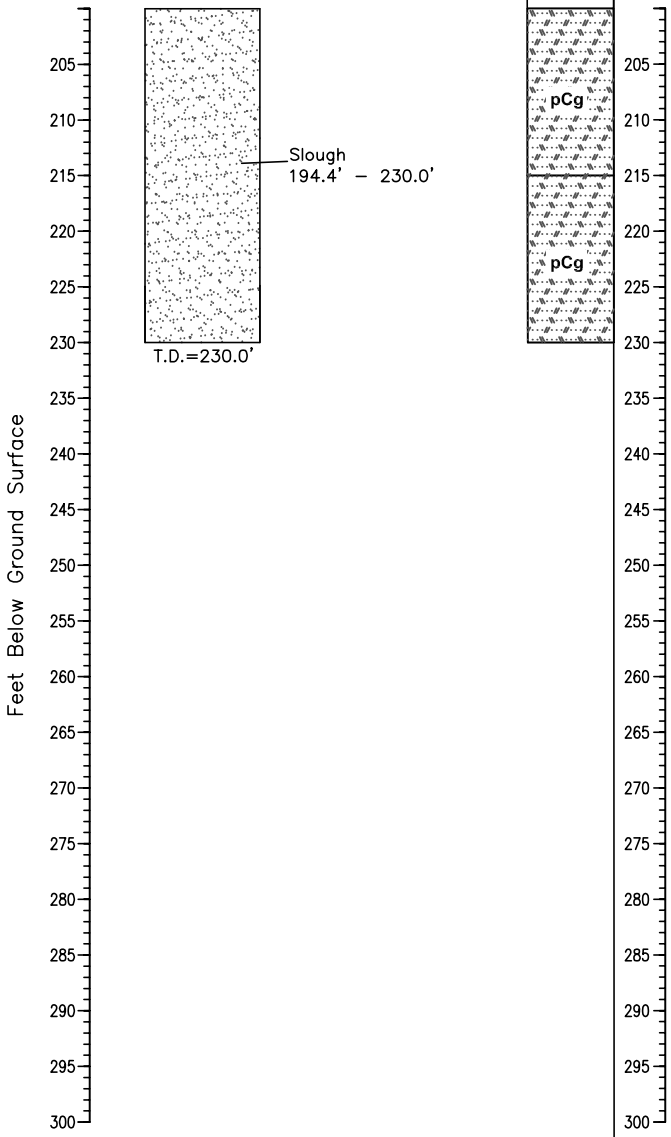

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
pCg	208–210	pCg	Mineralized granite, greenish gray gley (5/1), 20% plagioclase, 35% K–feldspar, 15% quartz, 15% mafics, hornblende, possibly magnetite, 10% chrysocolla, 5% K–feldspar altered, strongly lithified, saturated, little more K–feldspar, less chrysocolla, 3 to 4% jarosite.
pCg	218–220	pCg	Granite, reddish brown (5YR 5/3), 30% plagioclase, 45% K–feldspar, minor sericitization, 15% quartz, 10% mafics, mostly horneblende, generally fresh, strongly lithified.
	228–230	pCg	Granite, reddish brown (5YR 5/3), 30% plagioclase, 45% K–feldspar, minor sericitization, 15% quartz, 10% mafics, mostly horneblende, generally fresh, strongly lithified, more sericitization.

Geologist: C. Pigman
Driller: Badger Western
Date completed: 7–01–06

Drilling method: Air Rotary
Bit diameters: 10", 8" O.D.
Sampling device: Cuttings
Steel suface casing: Casing advanced to the extent of the 10" borehole

Northing: 14572.106
Easting: 2068.65
Elevation: 5843.002

PHELPS DODGE TYRONE, INC.
Well 166-2006-05

Daniel B. Stephens & Associates, Inc.
3–22–07
JN LT05.0069

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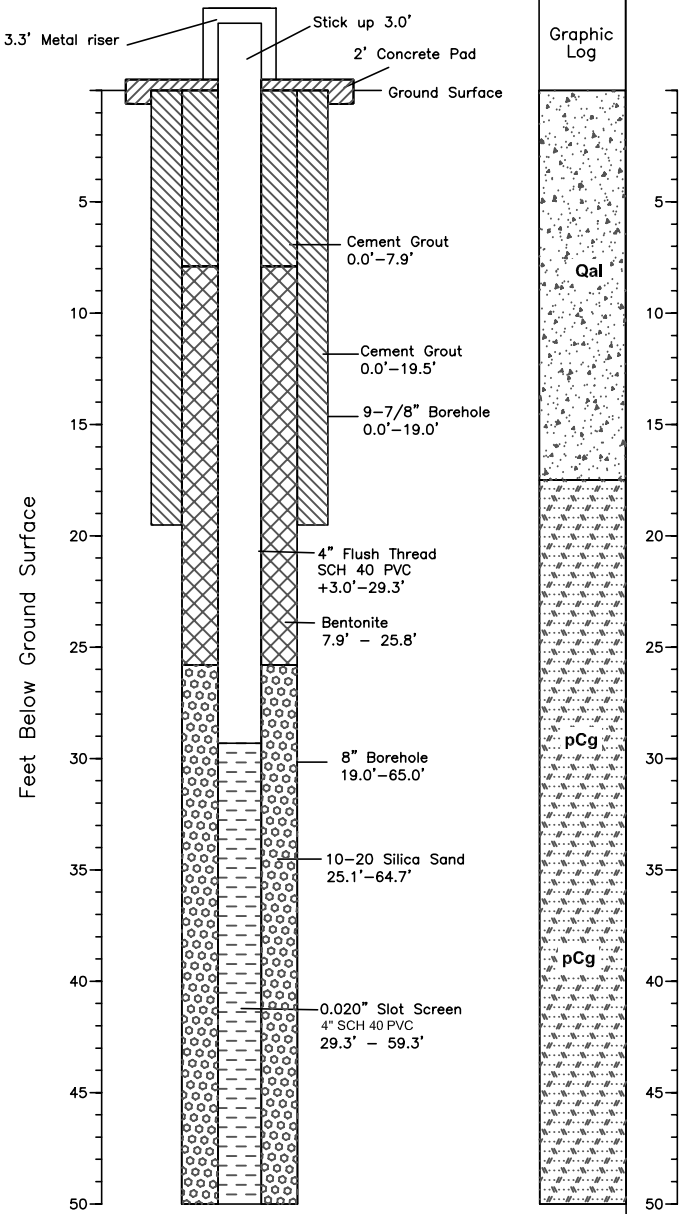

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–2	SW	Sandy with gravel, brown (10YR 5/3), fine to coarse sand with 20% fine to medium gravel, subrounded, poorly sorted, very soft consistency, dry; consists of quartz, feldspar (K–feldspar and plagioclase, which is slightly sericitized), small biotite flakes (granitic).
2–4	SW	Sand with gravel, dark yellowish brown (10YR 4/4), sand with 10–15% gravel, very moist, as above.
4–6	SW	Sand, brown (7.5YR 4/6), very fine to coarse sand with 10% very fine gravel, subrounded, poorly sorted, soft consistency, both sand and gravel fragments are granitic in composition, dry.
6–8	SW	Sand, brown (7.5YR 4/6), very fine to coarse sand with 10% very fine gravel, subrounded, poorly sorted, soft consistency, both sand and gravel fragments are granitic in composition, dry, very small pieces of greenish blue chrysocolla, less than 1%.
8-17.5	SW	Sand, brown (7.5YR 4/6), very fine to coarse sand with 10% very fine gravel, subrounded, poorly sorted, soft consistency, both sand and gravel fragments are granitic in composition, dry; at 9.5 feet hard drilling on a granitic boulder, approximately 0.8 foot thickness.
17.5–19	pCg	Granite, light pale brown (10YR 7/3) (wet) to pink (7.5YR 7/3), quartz, feldspar (60%) (white and pink), biotite, cuttings in range of less than 2–mm diameter size, dry; at 19 feet the borehole is dry when drilling is continued the next morning.
29–30	pCg	Granite, as above, feels slightly moist, light brown (7.5YR 6/4), very small fragments, less than 2–mm diameter on average.
39–40	pCg	Granite, as above, very moist, light brown (7.5YR 6/4), very small fragments, less than 2–mm diameter on average.
49–50	pCg	Granite, light yellowish brown (10YR 6/4), iron staining, slightly coarser (2 to 5 mm diameter) fragments.

Geologist: L. Rought
Driller: Badger Western
Date completed: 6–15–06

Drilling method: Air Rotary
Bit diameters: 9–7/8", 8" O.D.
Sampling device: Cuttings
Steel suface casing: Casing advanced to the extent of the 9–7/8" borehole

Northing: 17161.598
Easting: 1472.154
Elevation: 5676.857

PHELPS DODGE TYRONE, INC.
Well 166-2006-06

Daniel B. Stephens & Associates, Inc.
3–22–07
JN LT05.0069

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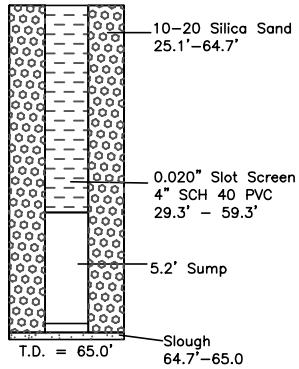

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
pCg	55–56	pCg	Fractured granite, red (10R 4/6), small rock fragments, mostly quartz and trace biotite and trace white altered feldspars, very fine fragments, mostly quartz; globules of white minerals (clay?)(feels like chalk when squeezed between fingers), 10–15% red clay, some larger rock fragments show intense alteration with yellowish brown iron hydroxide, very moist, possibly contact zone/fault zone.
	60–65	pCg	Fractured granite, red (10R 4/6), small rock fragments, mostly quartz and trace biotite and trace white altered feldspars, very fine fragments, mostly quartz; globules of white minerals (clay?)(feels like chalk when squeezed between fingers), 10–15% red clay, some larger rock fragments show intense alteration with yellowish brown iron hydroxide, very moist, possibly contact zone/fault zone; 2 rock fragments are granite at 2–inch diameter and have iron staining indicating a fracture zone.

Geologist: L. Rought
Driller: Badger Western
Date completed: 6–15–06

Drilling method: Air Rotary
Bit diameters: 9–7/8", 8" O.D.
Sampling device: Cuttings
Steel Suface Casing: Casing advanced to the extent of the 9–7/8" borehole

Northing: 17161.598
Easting: 1472.154
Elevation: 5676.857

PHELPS DODGE TYRONE, INC.
Well 166-2006-06

Daniel B. Stephens & Associates, Inc.
3–22–07
JN LT05.0069

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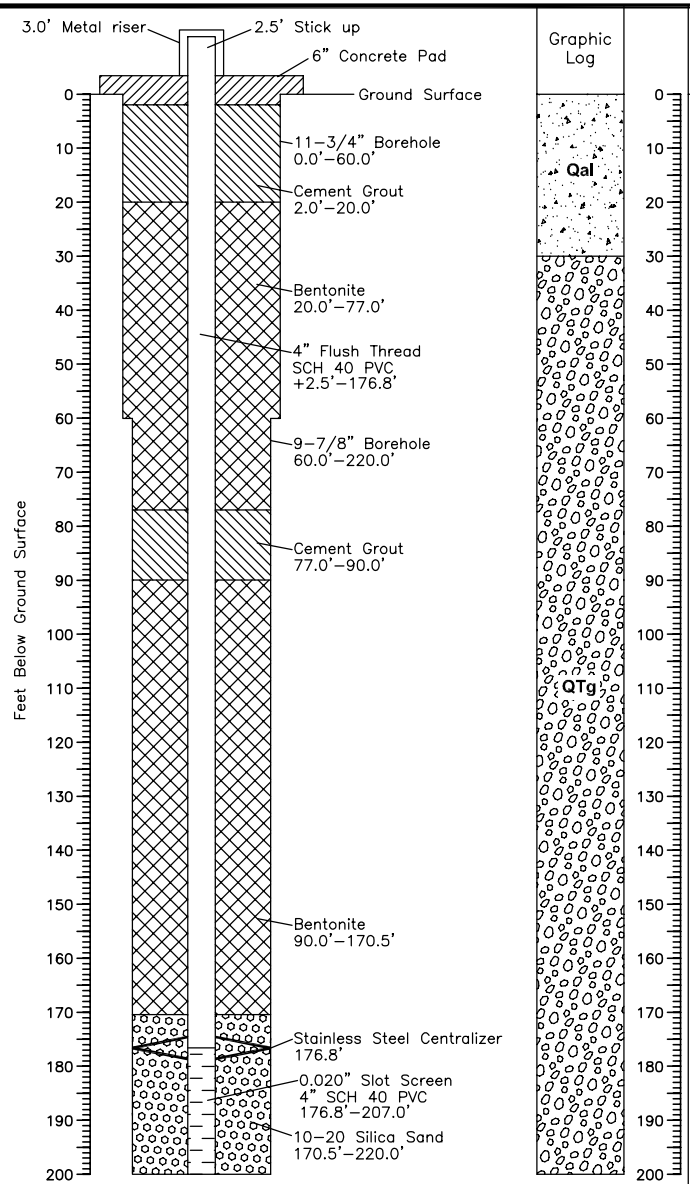

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
9–10	Fill/SW	Sand with gravel/fill, dusky red (2.5YR 4/4), very fine to coarse sand, trace silt/clay, 40% fine gravel to 25 mm diameter (granitic), poorly sorted, angular to subangular, moist.
19–20	Fill/SW	Fill, sand with gravel, reddish brown (5YR 5/4), very fine to coarse sand, trace silt/clay, 20% fine gravel to 25 mm diameter (granitic), poorly sorted, angular to subangular, moist.
29–30	Fill/SW	Sand with gravel, brown (7.5YR 5/4), mostly very fine to coarse sand, trace silt and clay, 30% fine gravel (<10 mm diameter), with granitic appearance (mostly coarse quartz, minor feldspar, which is sericitized K–feldspar, trace biotite), gravel fragments, poorly sorted, subangular, moisture cannot be determined as driller uses water to control dust.
39–40	SW	Sand with gravel, brown (7.5YR 5/4), mostly very fine to medium sand with trace silt and clay and 15% very fine gravel (<10 mm diameter), with granitic appearance (mostly coarse quartz, minor feldspar, which is sericitized K–feldspar, trace biotite), gravel fragments, poorly sorted, subangular.
49–50	SW	Sand with gravel, brown (7.5YR 5/4), mostly fine to coarse sand with trace silt, clay and 20% gravel to 40 mm diameter with granitic appearance (mostly coarse quartz, minor feldspar, which is sericitized K–feldspar, trace biotite), gravel fragments, poorly sorted, subangular.
59–60	SW	Sand with gravel, brown (7.5YR 5/4), mostly fine to coarse sand, trace silt, 15% very fine gravel to 15 mm diameter, granitic, poorly sorted, subangular.
69–70	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with 5% silt/clay, poorly sorted, 5% fine gravel/granitic, subangular.
79–80	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with trace silt/clay, poorly sorted, 10% fine gravel to 15 mm diameter, subangular.
89–90	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with trace silt/clay, poorly sorted, 10% fine gravel to 15 mm diameter, subangular.
99–100	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with trace silt/clay, poorly sorted, 15% fine gravel to 15 mm diameter, subangular.
109–110	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with trace silt/clay, poorly sorted, 10% fine gravel to 15 mm diameter, subangular.
119–120	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with trace silt/clay, poorly sorted, 10% fine gravel to 15 mm diameter, subangular.
129–130	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with trace silt/clay, poorly sorted, 10% fine gravel to 15 mm diameter, subangular.
139–140	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with trace silt/clay, poorly sorted, 10% fine gravel to 15 mm diameter, subangular.
149–150	GW	Gravel with sand, brown (7.5YR 5/4), gravel to 30 mm diameter with 30% fine to coarse sand, trace silt/clay, gravel is subangular, poorly sorted, mostly coarse quartz with 5% biotite (fresh looking) and feldspar (granitic or quartz monzonite), feldspar is sericitized (phyllic alteration).
159–160	GW	Gravel with sand, brown (7.5YR 5/4), gravel to 30 mm diameter with 30% fine to coarse sand, trace silt/clay, gravel is subangular, poorly sorted, mostly coarse quartz with 5% biotite (fresh looking) and feldspar (granitic or quartz monzonite), feldspar is sericitized (phyllic alteration).
169–170	GW	Gravel with sand, reddish yellow (7.5YR 6/4) to brown (7.5YR 5/4), gravel to 30 mm diameter with 30% fine to coarse sand, trace silt/clay, gravel is subangular, poorly sorted, mostly coarse quartz with 5% biotite (fresh looking) and feldspar (granitic or quartz monzonite), feldspar is sericitized (phyllic alteration).
179–180	GW	Gravel with sand, reddish yellow (7.5YR 6/4), gravel to 30 mm diameter with 30% fine to coarse sand, trace silt/clay, gravel is subangular, poorly sorted, mostly coarse quartz with 5% biotite (fresh looking) and feldspar (granitic or quartz monzonite), feldspar is sericitized (phyllic alteration).
189–190	GW	Gravel with sand, reddish yellow (7.5YR 6/4), gravel to 40 mm diameter with 30% fine to coarse sand, trace silt/clay, gravel is subangular, poorly sorted, mostly coarse quartz with 5% biotite (fresh looking) and feldspar (granitic or quartz monzonite), feldspar is sericitized (phyllic alteration).
199–200	GW	Gravel with sand, reddish yellow (7.5YR 6/4), gravel to 40 mm diameter with 30% fine to coarse sand, trace silt/clay, gravel is subangular, poorly sorted, mostly coarse quartz with 5% biotite (fresh looking) and feldspar (granitic or quartz monzonite), feldspar is sericitized (phyllic alteration).

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5–26–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 20651.362
Easting: 7953.944
Elevation: 5755.995

PHELPS DODGE
TYRONE, INC.

Well 286-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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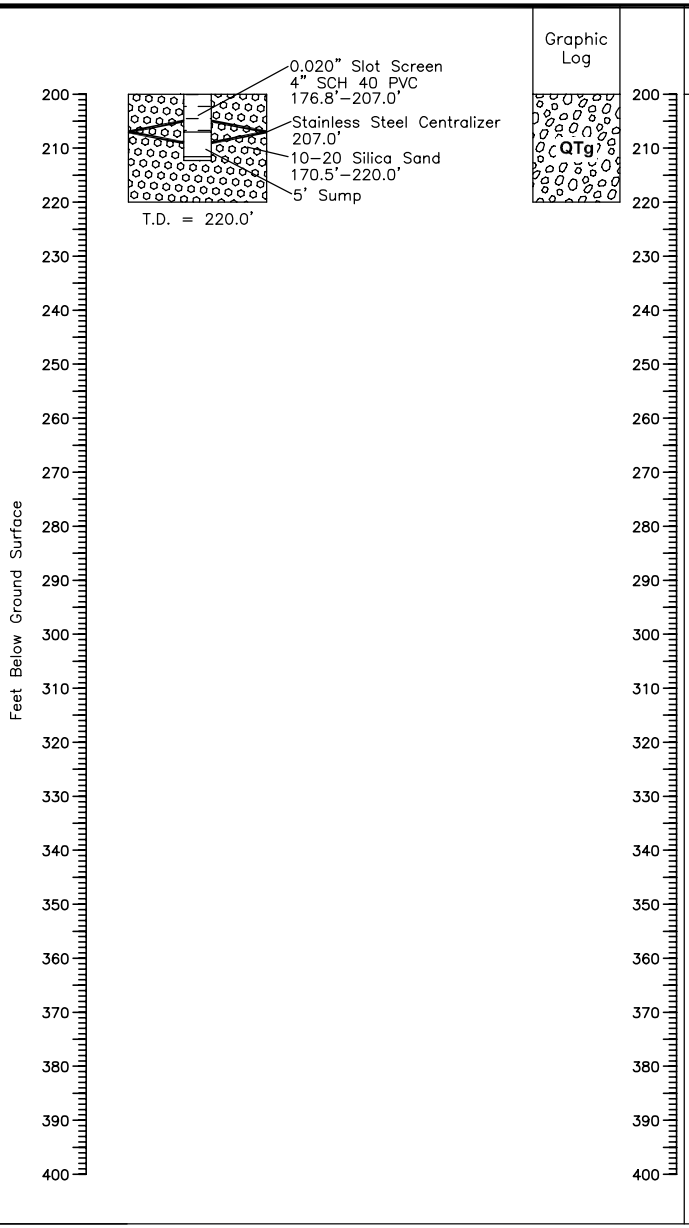

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209-210	GW	Gravel, brown (7.5YR 5/4), granitic, fines washed out, Fe-oxide staining.
219-220	GW	Gravel with sand, strong brown (7.5YR 5/6), granitic gravel with quartz, feldspar, biotite, Fe-oxide staining, 10% fines mostly silt/clay fraction.

Geologist: L. Rought
Driller: WDC Exploration.
Date completed: 5-26-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 20651.362
Easting: 7953.944
Elevation: 5755.995

PHELPS DODGE
TYRONE, INC.

Well 286-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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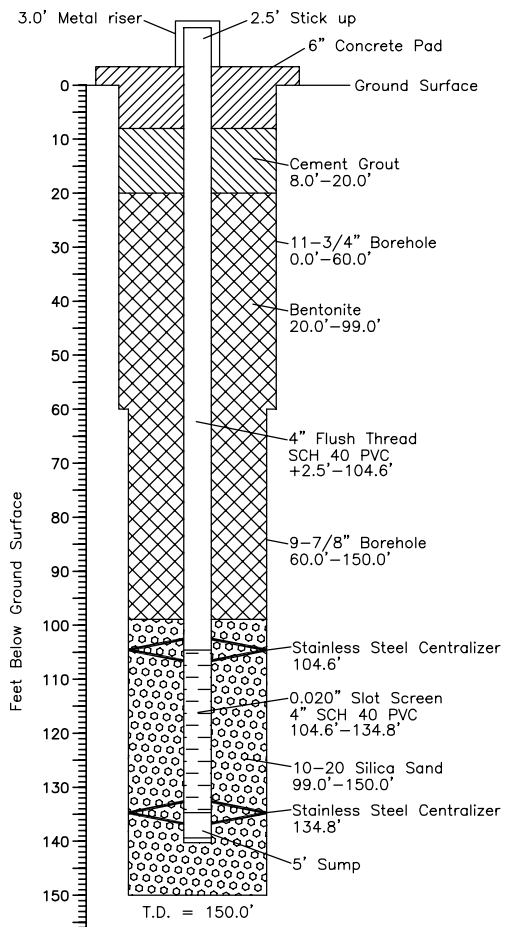

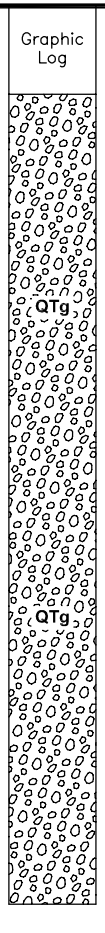

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
9–10	SM	Silty sand, light brown (7.5YR 6/4), very fine to coarse sand with 20% silt, trace clay, <1% gravel to 20 mm diameter, poorly sorted, subangular, soft consistency, moist, fines mostly quartz, white feldspar, trace biotite, no reaction with hydrochloric acid.
19–20	SW	Sand, light brown (7.5YR 6/4), very fine to mostly coarse sand, trace fine gravel, poorly sorted, soft consistency, fines mostly quartz, moist, subangular, no reaction with hydrochloric acid.
29–30	SW	Sand, light brown (7.5YR 6/4), very fine to mostly coarse sand, trace fine gravel, poorly sorted, soft consistency, fines mostly quartz, moist, subangular, no reaction with hydrochloric acid.
39–40	SW	Sand, strong brown (7.5YR 4/6), very fine to coarse sand, trace silt, trace fine gravel, poorly sorted, subangular, soft consistency, very moist, weak reaction with hydrochloric acid.
49–50	SW	Sand, brown (7.5YR 5/4), very fine to coarse sand, trace silt, trace fine gravel, poorly sorted, subangular, soft consistency, very moist, strong reaction with hydrochloric acid.
59–60	SM	Silty sand, brown (7.5YR 5/4), very fine to some coarse sand with 20% silt, hard clay, trace fine gravel, poorly sorted, subangular, moist, strong reaction with hydrochloric acid.
69–70	SM	Silty sand, light brown (7.5YR 6/4), very fine to some coarse sand with 20% silt, hard clay, trace fine gravel, poorly sorted, subangular, moist, strong reaction with hydrochloric acid.
79–80	SM	Silty sand, light brown (7.5YR 6/4), very fine to coarse sand, 15% silt, trace clay, 10–15% fine gravel is mostly quartz, poorly sorted, subangular, moist, strong reaction with hydrochloric acid.
89–90	SW	Sand with gravel, brown (7.5YR 5/4), very fine to coarse sand, 5% silt, trace clay, 20–25% fine gravel, poorly sorted, subangular, moist, strong reaction with hydrochloric acid.
99–100	SW	Sand with gravel, brown (7.5YR 5/4), very fine to coarse sand, 5% silt, trace clay, 20–25% fine gravel, poorly sorted, subangular, moist, strong reaction with hydrochloric acid.
109–110	GW	Gravel with sand, brown (7.5YR 5/4), 65% fine gravel to 20 mm diameter, 30–35% very fine to mostly coarse sand, trace silt/clay, subrounded to subangular, poorly sorted, very moist, strong reaction with hydrochloric acid.
119–120	GW	Gravel with sand, brown (7.5YR 5/4), 65% fine gravel to 20 mm diameter, 30–35% very fine to mostly coarse sand, trace silt/clay, subrounded to subangular, poorly sorted, very moist to wet, strong reaction with hydrochloric acid.
129–130	GW	Gravel with sand, brown (7.5YR 5/3), 60% fine gravel to 15 mm diameter, 35% medium to coarse sand with minor silt/clay/fine sand, poorly sorted, subangular to subrounded, saturated, strong reaction with hydrochloric acid.
–	–	No sample.
–	–	No sample.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 6-1-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 21338.257
Easting: 8026.800
Elevation: 5683.105

PHELPS DODGE
TYRONE, INC.

Well 286-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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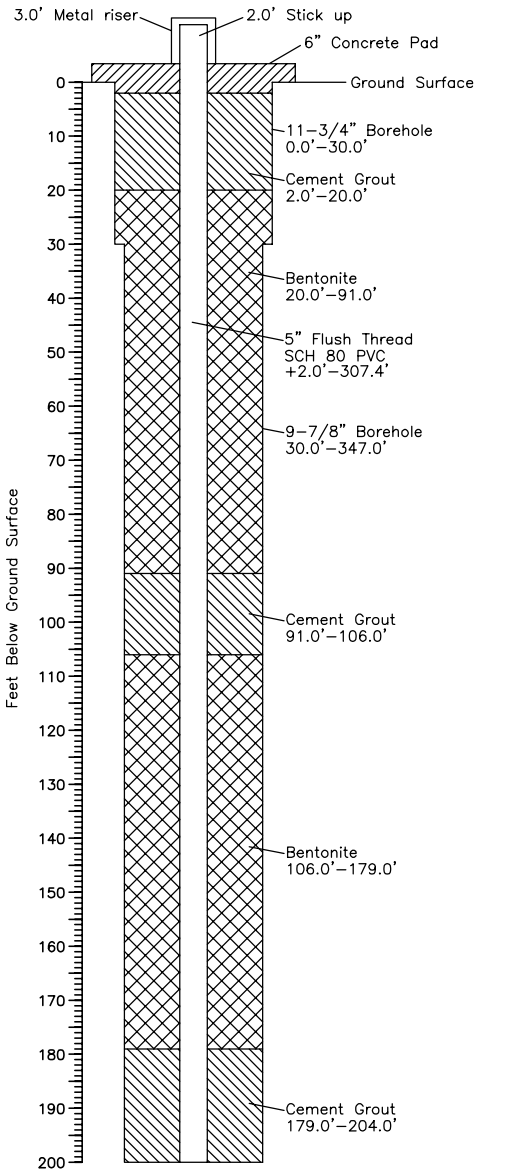

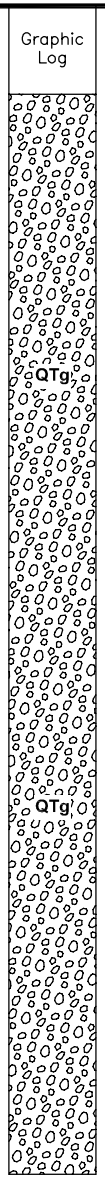

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
9–10	SW	Sand, well graded, brown (5YR 4/4), fine to coarse sand, 7–12% fines, 5% pebble gravel (up to 3 cm), grains feldspar, quartz, and quartz monzonite, dry.
19–20	SM	Silty sand with gravel, red–orange brown (10YR 6/6), fine to medium sand, 15–20% silt (fines), 10–15% gravel (up to 1 cm), composed of feldspar and quartz, vein quartz, Fe–oxide?stained, local Mn–oxide, dry.
29–30	GW	Gravel with sand, well graded, grayish orange pink (5YR 7/2), 70–80% broken and angular chips (up to 2 cm), 5–7% fines, fine to medium sand 10–12%, composed of feldspar, quartz, and quartz monzonite, dry.
39–40	SW	Sand well graded with gravel, grayish orange pink (5YR 7/2), fine to medium sand, 15–20% broken gravel fragments (up to 1 cm), <5% fines, composed of quartz monzonite, trace limonite, dry.
49–50	SP–SM	Sand with silt to silty sand, poorly graded, grayish orange pink (5YR 7/2), very fine to fine sand, <5% medium–grained sand, 10–20% fines, composed of feldspar, quartz, and biotite, dry.
59–60	SM	Silty sand, poorly graded, grayish orange pink (5YR 7/2), 80–85% fine sand and silt, 10–14% granules and broken chips (=1.5 cm), composed of feldspar, quartz, biotite, and quartz monzonite, minor greenish fine–grained diorite.
69–70	SW	Sand with gravel, well graded, yellowish brown (10YR 5/4), 75–85% fine to medium sand, 15–20% pebbles/broken chips (up to 1 cm), =10% fines, composed of quartz, feldspar, biotite, and quartz monzonite.
79–80	SW	Sand with silt and gravel, well graded, pale yellowish brown (10YR 6/2), 50–60% very fine to fine sand, 15–20% silty fines, 15–25% coarse sand and chips (angular and broken) up to 1.0 cm, composed of quartz monzonite, feldspar, quartz, and biotite.
89–90	SW	Sand with silt and gravel, well graded, pale yellowish brown (10YR 6/2), 70–65% very fine to medium sand, 12–15% silt, 20–25% granules and broken chips (angular up to 0.7 cm), composed of white feldspar, quartz, biotite, minor pink microcline, and quartz monzonite, dry.
99–100	SW	Sand, well graded, white (10YR 8/2) to yellowish brown (10YR 6/6), 100% sand to granule–sized chips, angular, composed of white and orange pink feldspar, quartz, biotite, and quartz monzonite, local weak Fe–oxides, at 99 feet began drilling with fluid–assisted Air Rotary, cuttings coming up wet, no change in drilling rate or formation.
109–110	SW–SC	Gravel with clay, well graded, pale yellowish brown (10YR 6/2), >60% angular and broken chips (up to 2.8 cm), 10% clay/silt, 20–25% sand, composed of feldspar, quartz, biotite, and quartz monzonite.
119–120	SW–SC	Sand, well graded with silt and clay, yellowish brown (10YR 5/4), fine to coarse sand, 15–17% silt and clay, 10% granules and small pebble–sized chips (up to 0.5 cm), angular, composed of white feldspar, quartz, biotite, and quartz monzonite.
129–130	GW–GC	Gravel with sand and clay, yellowish brown (10YR 5/4), >70% angular to broken chips (up to 3 cm), 20–30% fine to coarse sand, 10–15% clay/silt, composed of biotite and quartz monzonite, locally displaying weak yellowish limonite staining.
139–140	SW	Sand, well graded, pale yellow brown (10YR 6/2), 80–90% fine to very coarse sand, =5% silt/clay, 10–12% broken chips (up to 0.5 cm) indicating pebble gravel, composed of white and minor pink feldspar, quartz, biotite, and quartz monzonite.
149–150	GW	Gravel, well sorted, pale yellowish brown (10YR 6/2), very coarse cuttings devoid of fines and most sand, 90–95% chips (angular and broken) up to 2 cm, 5–10% coarse sand, composed of monolithologic biotite–quartz monzonite, local limonite Fe–oxides.
159–160	GW	Gravel with sand, well graded, pale yellowish brown (10YR 6/2), coarse cuttings 80–85% angular chips (up to 1.5 cm), 10–15% medium–coarse sand, composed mostly of medium–grained biotite, quartz monzonite, and minor dark–colored fine–grained diorite.
169–170	SW–SC	Sand, well graded with gravel and clay, pale yellowish brown (10YR 6/2), 70–80% fine to very coarse sand, 7–10% clay/silt, 15–20% pebble gravel inferred by abundance of broken chips = 0.7 cm, composed primarily of grains and fragments of quartz monzonite.
179–180	SW–SC	Sand with gravel and clay, well graded, pale yellow (10YR 6/2), medium to very coarse sand, 5–7% clay/silt, 15–20% gravel as indicated by abundant broken chips (up to 1.3 cm), composed of feldspar, quartz, and quartz monzonite fragments.
189–190	GC	Gravel with sand and clay, pale yellowish brown (10YR 6/2), 40–60% angular gravel chips (up to 2 cm), 15–17% clay/silt, 30–40% medium to coarse sand, well graded, composed of quartz monzonite, feldspar, and quartz.
199–200	GW–GC	Gravel with clay and sand, well graded, pale yellowish brown (10YR 6/2), 50–60% gravel–sized chips, angular to broken (up to 2.8 cm), 7–10% clay, coarse fragments, mostly quartz monzonite, rare orange–pink microcline, locally weak Fe–oxide staining.

Geologist: J.R. Lawrence
Driller: WDC Exploration
Date completed: 5–26–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 16128.785
Easting: 16170.519
Elevation: 5893.424

PHELPS DODGE
TYRONE, INC.

Well 286-2005-03

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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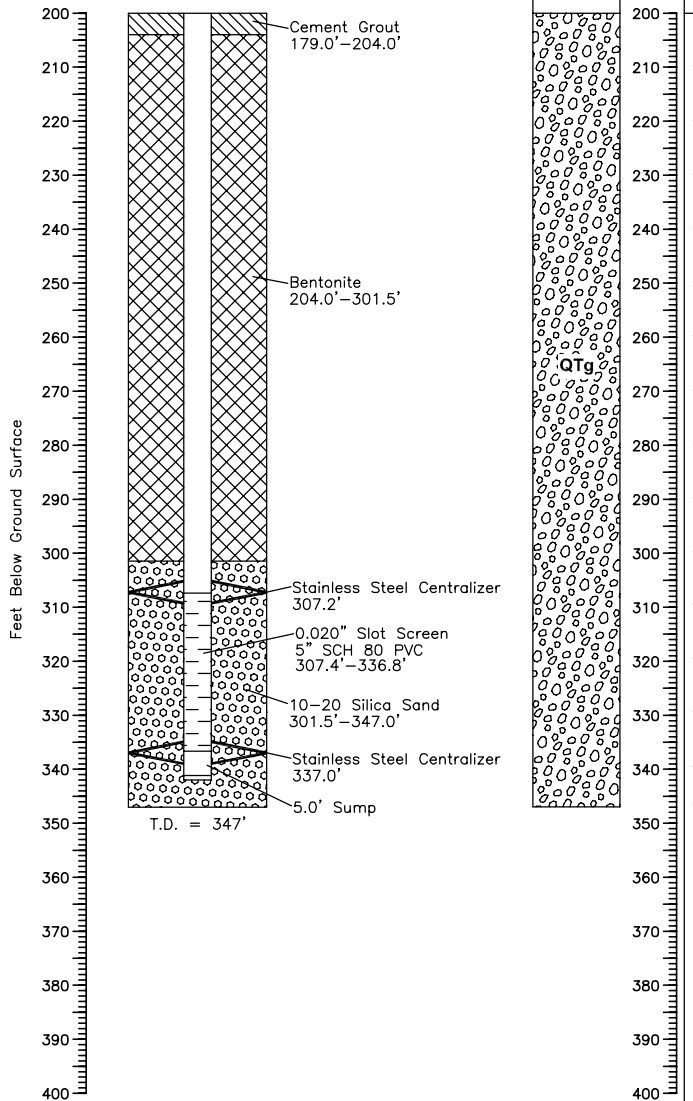

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209-210	GW-GC	Gravel with clay and sand, well graded, pale yellowish brown (10YR 6/2), 50-60% gravel-sized chips (up to 2 cm), angular and broken, 7-10% clay, 20-30% sand, composition mostly quartz monzonite fragments, local weak Fe-oxide staining, rare hematite.
219-220	GW	Gravel, well sorted, pale yellowish brown (10YR 6/2), coarse chips, 95-97% gravel-sized chips (up to 2 cm), <1% fines, composition mainly quartz monzonite fragments, local yellowish limonite staining, trace fine-grained diorite.
229-230	SW-SC	Sand with clay and gravel, well graded, pale yellowish brown (10YR 6/2), medium to very coarse sand, 7-10% clay, 15-20% pebble-sized chips (up to 1.2 cm), composed of feldspar, quartz, and quartz monzonite, trace diorite.
239-240	GW	Gravel, well graded, pale yellowish brown (10YR 6/2), coarse chips, gravel-sized chips (up to 1.2 cm), angular/broken, <2% fines, <10% sand, composed of quartz monzonite fragments locally limonite-stained, trace fine-grained diorite.
249-250	GW	Gravel, well graded, pale yellowish brown (10YR 6/2), coarse chips, pebble-sized broken/angular chips (up to 1.5 cm), 3-4% clay, <10% sand, composed of quartz monzonite fragments.
259-260	SW-SC	Sand with clay and gravel, pale yellowish brown (10YR 6/2), 70-80% medium to coarse sand, well graded, 5-7% clay, 15-20% fine gravel-sized fragments (up to 0.8 cm), composed of white and minor pink feldspar, quartz, and quartz monzonite fragments.
269-270	GW	Gravel, well graded, pale yellowish brown (10YR 6/2), coarse chips, angular (up to 2 cm), <3% clay, <10% sand, composed of quartz monzonite fragments.
279-280	GW	Gravel, well graded, pale yellowish brown (10YR 6/2), coarse, angular chips (up to 2 cm), <3% clay, <10% sand, composed mainly of quartz monzonite fragments, partly limonite-stained.
289-290	SW	Sand, well graded, pale yellowish brown (10YR 6/2), 95-99% moderate to very coarse sand, <1% fines, <2% gravel, composed of feldspar, quartz, biotite, and quartz monzonite.
299-300	SP	Sand, poorly graded, pale yellowish brown (10YR 6/2), 97-99% fine- to medium-grained sand, <1% fines, <1% gravel, composed of feldspar, quartz, and biotite, partly limonite-stained.
309-310	SW	Sand, well graded, pale yellowish brown (10YR 6/2), 90-95% fine to very coarse sand, <2% fines, 7-10% angular gravel-sized chips (up to 1.8 cm), composed of feldspar, quartz, biotite, and quartz monzonite fragments.
319-320	SW	Sand, well graded, pale yellowish brown (10YR 6/2), 90-95% fine to very coarse sand, <3% fines, <5% gravel, composed of feldspar, quartz, biotite, and quartz monzonite fragments.
329-330	SW	Sand, well graded, pale yellowish brown (10YR 6/2), 90-95% fine to very coarse sand, <2% fines, 5-7% gravel (up to 0.5 cm) indicated by broken chips, composed of feldspar, quartz, biotite, and quartz monzonite fragments.
339-340	GW	Gravel, well graded, pale yellowish brown (10YR 6/2), coarse chips suggest very coarse gravel, angular chips (up to 2.5 cm), <1 % fines, 10-12% coarse sand, composed of quartz monzonite.
346-347	GW	Gravel, well graded, pale yellowish brown (10YR 6/2), angular and broken chips (up to 1.5 cm) suggest coarse gravel, 2-3% fines, 10-12% sand, composed of quartz monzonite.

Geologist: J.R. Lawrence
Driller: WDC Exploration
Date completed: 5-26-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 16128.785
Easting: 16170.519
Elevation: 5893.424

PHELPS DODGE
TYRONE, INC.

Well 286-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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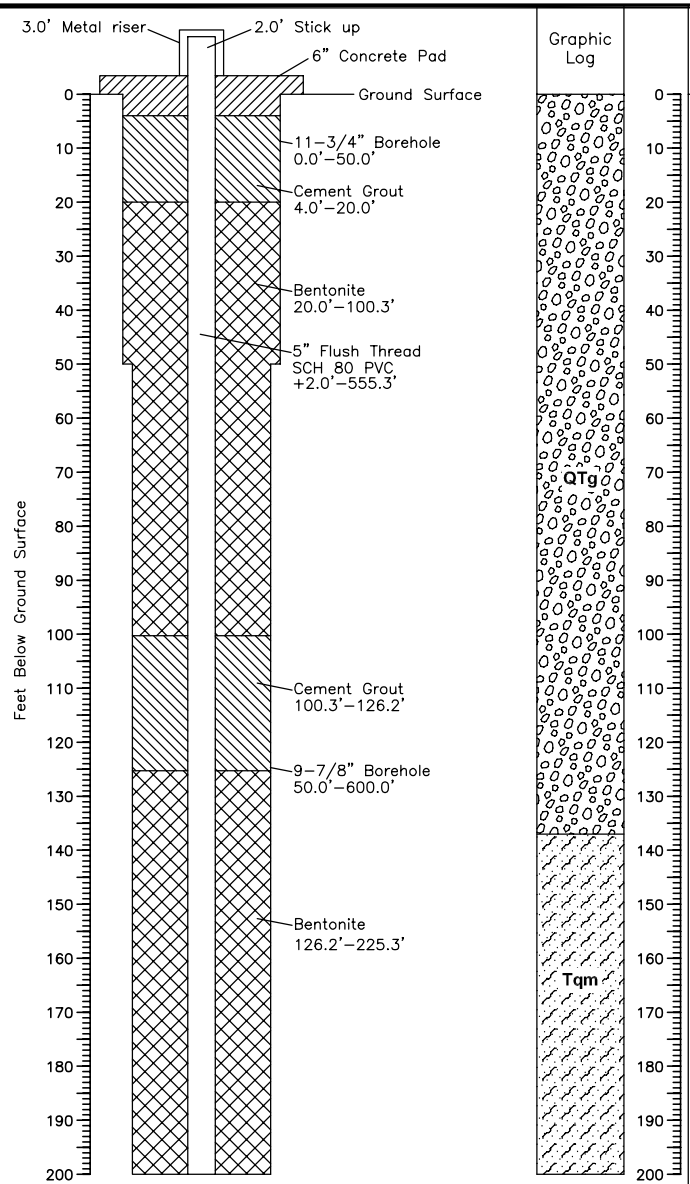

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0		
9–10	SC	Clayey sand, dark reddish brown (2.5YR 5/8), 15–20% fines, 1–5% gravel (angular ≤1.5 cm), 60–70 % coarse to medium sand, composed of granitic or other quartz–feldspar clasts, slightly moist.
19–20	SW	Sand with silt, well graded, medium brown (5YR 5/3), fine to coarse sand, 75–80% grains subangular, 5–7% pebble gravel, 5–10% fines, composed of granite, quartz monzonite, locally Fe–oxide?stained, dry.
29–30	SW	Sand, well graded, medium brown (5YR 5/4), 95–97% fine to coarse sand, <5% fines, <1% pebble gravel, grains angular to subangular, composed of quartz and feldspar, dry.
39–40	SW	Sand with silt, pale yellowish brown (5YR 6/6), 90% fine to coarse sand, 7–10% fines (silt), 5–7% angular gravel (≤1 cm), composed of quartz and feldspar, coarser clasts mainly quartz monzonite, commonly limonite–stained, dry.
49–50	SW	Sand with silt, yellowish brown (5YR 6/4), fine to coarse sand, 5–7% silt, <3% gravel, composed of quartz and feldspar, dry.
59–60	SP	Sand with silt, poorly graded, medium brown (5YR 6/3), fine to medium sand, 7–10% silt, <1% gravel and granules, composed of quartz and feldspar, dry.
69–70	SW	Sand with silt, gravel, well graded, reddish brown (5YR 5/6), 75–80% fine to coarse sand, 10–12% silt, 7–10% pebbles and broken chips, coarse clasts mainly quartz monzonite, locally limonite–stained, dry.
79–80	SW	Sand with silt and gravel, well graded, pale yellow brown (5YR 6/4), fine to coarse sand, 10–12% silt, 7–10% granular to small pebbles, composed of quartzofeldspathic, dry.
89–90	SM	Silty sand, pale brown (5YR 5/4), fine sand, poorly sorted, 15–25% fines, <1% coarse sand, dry.
99–100	SW	Sand with silt, well graded, light brown (5YR 6/4), fine to very coarse sand, 85–90% granules, 10–12% fines, <1% small pebbles, dry.
109–110	SW	Sand with silt and gravel, well graded, medium brown (5YR 5/4), 65–70% fine to very coarse sand, 7–10% fines, 20–25% subangular to broken chips up to 1.5 cm, composed of quartz monzonite and possibly minor granodiorite, commonly limonite–stained, dry.
119–120	SW	Sand with silt, well graded, light brown (5YR 6/3), 80–85% fine to very coarse sand, 5–7% silt, 7–10% granules and very small pebbles (up to 0.7 cm), composed of quartz and feldspar, dry.
129–130	SP	Sand with silt, poorly graded, light pinkish brown (5YR 6/3), very fine to medium sand, 7–10% fines, <1% gravel, dry, quartz monzonite chips only, apparent Gila Conglomerate/tertiary quartz monzonite contact at 137 feet.
139–140	Tqm	Gravel with sand, well sorted, medium reddish brown (5YR 5/4), 50–55% pebble size, broken chips (up to 3 cm), 45–50% fine to coarse sand, 5–7% fines, chips dominantly quartz monzonite, medium–grained, moist, chips commonly yellow, limonite–stained.
149–150	Tqm	Biotite quartz monzonite, white (2.5YR 8/1) to yellowish (2.5YR 7/8), medium–grained, holocrystalline, equigranular rock with 1–3% associated biotite, also occurring minor pink granite, very fine–grained dark gray, volcanic rocks, quartz monzonite very weakly limonite–stained.
159–160	Tqm	Biotite quartz monzonite, yellowish (2.5YR 7/8), various colors: white to red, medium–grained quartz–feldspar ± biotite rock chips, moderately mineralized with limonite, hematite, Mn–oxides, minor very fine–grained dark green volcanic rock.
169–170	Tqm	Quartz monzonite, white (2.5YR 8/1) to yellowish (2.5YR 6/7), mainly quartz and feldspar ± biotite rock, medium–grained, most chips have weak limonite staining, weakly mineralized, minor green fine–grained volcanic rock.
179–180	Tqm	Quartz monzonite, various colors: white (2.5YR 8/1) to yellowish (2.5YR 6/7), mainly quartz and feldspar ± biotite rock, medium–grained, 50% chips have yellow limonite staining.
189–190	Tqm	Quartz monzonite, yellowish (2.5YR 6/7), various colors, typical quartz–feldspar ± biotite rock, medium–grained, chips display weak to moderate mineralization as limonite, hematite, Mn–oxide staining, quartz veinlets.
199–200	Tqm	Quartz monzonite, pale yellow (2.5YR 6/7) to white (2.5 YR 8/1), medium–grained quartzofeldspathic rock with accessory biotite, most chips show weak mineralization as limonite staining and coating, minor porphyritic diorite.

Geologist: J. Lawrence
Driller: WDC Exploration
Date completed: 4–21–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 8122.534
Easting: 19424.504
Elevation: 5965.599

PHELPS DODGE
TYRONE, INC.

Well 363-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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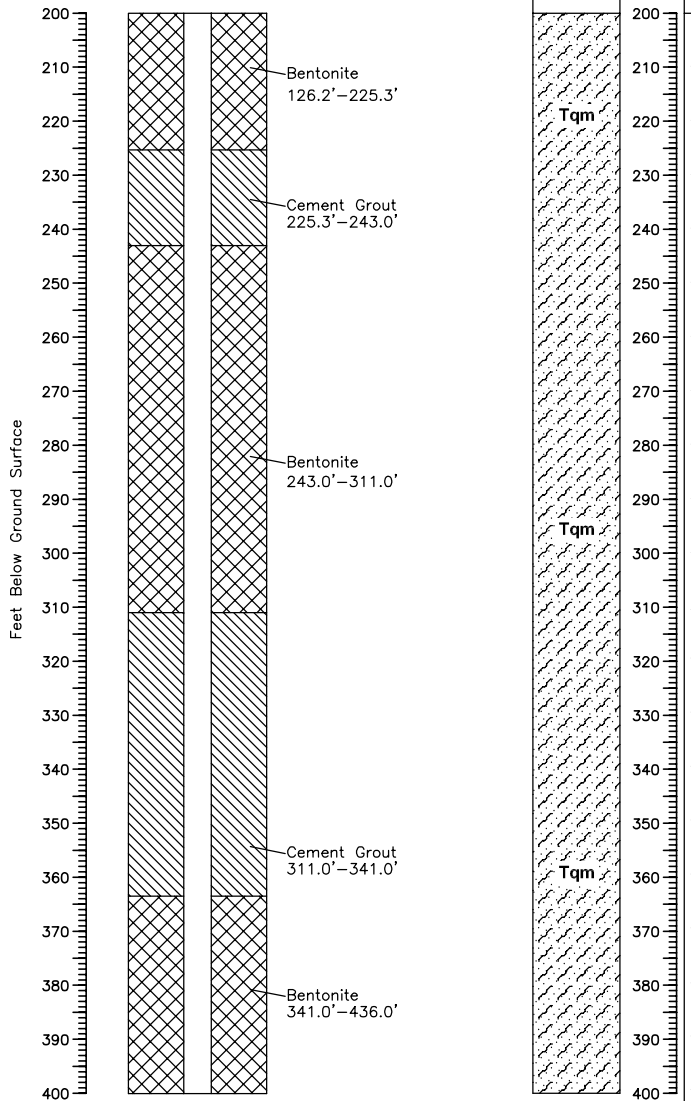

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209-210	Tqm	Quartz monzonite, various colors: white (2.5YR 8/1) to pale yellow (2.5YR 6/7), mainly medium-grained, quartz and feldspar ± biotite rock, 30% chips limonite-stained, rare dark-colored very fine-grained volcanic rock.
219-220	Tqm	Quartz monzonite, various colors: yellowish (2.5YR 6/7) to white (2.5YR 8/1), medium-grained, 70% of chips are limonite-stained, weakly mineralized, local hematite-goethite.
229-230	Tqm	Quartz monzonite, various colors: yellow brown (2.5YR 6/7), medium-grained quartz-feldspar rock, majority of chips display weak to moderate limonite and goethite alteration.
239-240	Tqm	Quartz monzonite, various colors: yellow brown (10YR 6/8) to gray and white (10YR 8/1), mainly quartz monzonite (quartz-feldspar-biotite rock), medium-grained, 30-40% of chips mineralized, moderate amounts of limonite and goethite, minor dark green porphyritic diorite present.
249-250	Tqm	Quartz monzonite, various colors: yellow brown (10YR 6/8) to white (10YR 8/1), typical medium-grained quartz-feldspar-biotite igneous rock, 30% chips show weak alterations as limonite, Mn-oxide and minor hematite staining.
259-260	Tqm	Biotite quartz monzonite, various colors: yellow brown (10YR 6/8) to white (10YR 8/1), medium-grained quartz-feldspar-biotite igneous rock, 50-60% chips altered with limonite, goethite, hematite, MnO2 staining, 1% dark green diorite.
269-270	Tqm	Quartz monzonite, various colors: yellow brown (10YR 6/8) grayish and white (10YR 8/1), medium-grained, up to 50% chips stained by limonite or have goethite ± hematite coatings.
279-280	Tqm	Biotite quartz monzonite, various colors: yellow brown (10YR 6/8) to white (10YR 8/1), medium-grained quartz-feldspar-biotite rock, 30% of chips weakly limonite-stained.
289-290	Tqm	Biotite quartz monzonite, various colors: yellow brown (10YR 6/8) to white (10YR 8/1), medium-grained quartzofeldspathic igneous rock, 30-40% chips show weak limonite staining, up to 1% occur as hematite-goethite Mn-oxide.
299-300	Tqm	Biotite quartz monzonite, various colors: yellow brown (10YR 6/8) to gray and white (10 YR 8/1), most chips display weak yellowish limonite staining, 2% dark green diorite, minor chips of hematite-goethite.
309-310	Tqm	Biotite quartz monzonite, various colors: white (8YR 8/1) and gray to yellowish brown (10YR 6/8), medium-grained quartz feldspar igneous rock, 30% chips weakly limonite-stained, <1% green diorite, rare hematite and goethite chips.
319-320	Tqm	Biotite quartz monzonite, various colors: yellowish brown (10YR 6/8) to light brown (10YR 6/3), medium-grained quartz feldspar ± biotite rock, local dark green possibly fine-grained volcanic (?) rock, 25-30% chips limonite-stained, <1% chips of hematite-goethite.
329-330	Tqm	Biotite quartz monzonite, various colors: white (10YR 8/1) to yellowish brown (10YR 6/8), medium-grained quartz, feldspar, and biotite rock, 20-25% chips limonite-stained, <1% quartz diorite, minor hematite-goethite chips.
339-340	Tqm	Biotite quartz monzonite, various colors: white (10YR 8/1), pink, green, and yellow brown (10YR 6/8), mainly quartz monzonite, 3-5% granite with pink orange microcline, 20% chips limonite-stained.
349-350	Tqm	Biotite quartz monzonite, various colors: white (10YR 8/1), gray and yellow brown (10YR 6/8), medium-grained quartz-feldspar ± biotite rock, 15% chips limonite-stained.
359-360	Tqm	Biotite quartz monzonite, various colors: very light gray (10YR 7/1) to yellowish brown (10YR 6/8), medium-grained, 15% of chips limonite-stained, 1% chips of hematite-goethite.
369-370	Tqm	Quartz monzonite, various colors: white (10YR 8/1) to pale yellow brown (10YR 6/8), fine-sized chips of quartz, feldspar, and quartz monzonite, 10-15% chips weakly limonite-stained, 1-2% fragments of Mn-oxide ± hematite.
379-380	Tqm	Quartz monzonite, various colors: white (10YR 8/1), gray, pink, and yellow brown (10YR 6/8), 90% medium-grained quartz monzonite, 8% granitic rock with pink K-feldspar, 2% chips hematite or Mn-Oxide, 20-25% chips limonite-stained.
389-390	Tqm	Quartz monzonite, various colors: pink, gray, yellowish brown (10YR 6/8), and white (10YR 8/1), 80% medium-grained quartz monzonite (>50% of which is limonite-stained), 15-19% medium-grained granite with pink or K-feldspar, minor hematite, minor very fine-grained green volcanic rock.
399-400	Tqm	Quartz monzonite, various colors: yellow brown (10YR 6/8), pink, white (10YR 8/1), 90% medium-grained quartz monzonite, 20% of chips limonite-stained, 10% pink medium- to coarse-grained granite.

Geologist: J. Lawrence
Driller: WDC Exploration.
Date completed: 4-21-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 8122.534
Easting: 19424.504
Elevation: 5965.599

PHELPS DODGE
TYRONE, INC.

Well 363-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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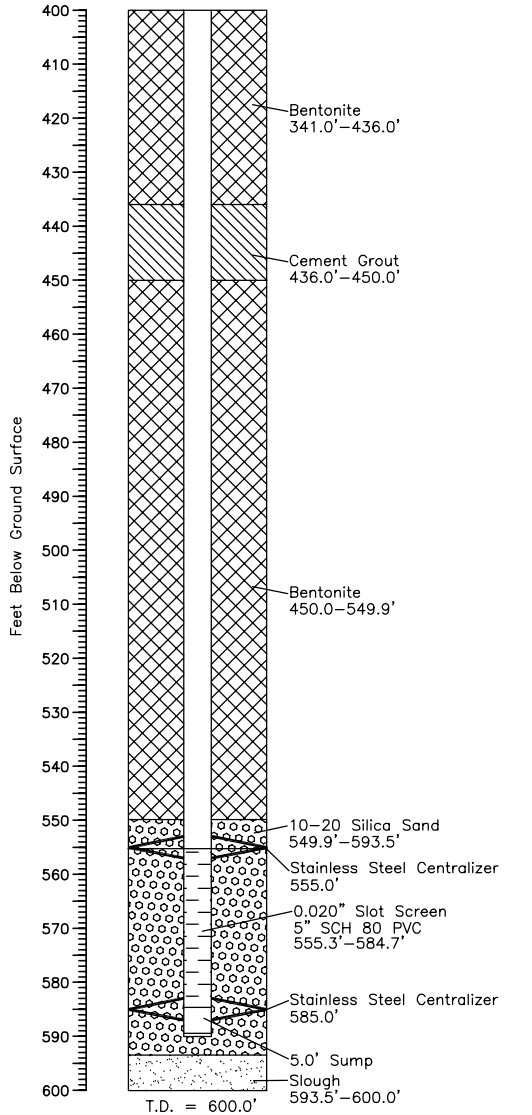

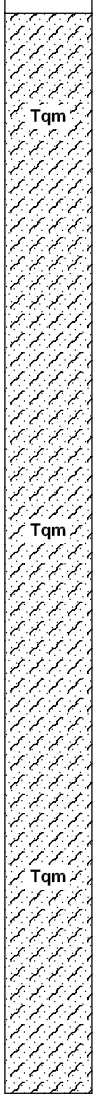

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
409-410	Tqm	Quartz monzonite, various colors: yellowish brown (10YR 6/8) to very light gray (10YR 7/1), 80% medium-grained quartz monzonite, partly limonite-stained, 20% pink coarse-grained, granite with conspicuous orange K-feldspar.
419-420	Tqm	Quartz monzonite, various colors: white (10YR 8/1) to yellowish brown (10YR 6/8), fine (sand size) cuttings of quartz and feldspar, 20% weakly limonite-stained, 5-10% pink coarse-grained granite, trace chips of hematite-goethite.
429-430	Tqm	Quartz monzonite, various colors: yellowish brown (10YR 6/8) to pink and white (10YR 8/1), typical medium-grained quartz monzonite, 50-60% chips limonite-stained, <1% hematite-goethite, minor pink K-feldspar.
439-440	Tqm	Quartz monzonite, various colors: white (10YR 8/1), pink, gray, yellow brown (10YR 6/8), medium-grained quartz-feldspar-biotite igneous rock, 40% of chips weakly limonite-stained, <5% pink coarse-grained granite, trace hematite-goethite chips.
449-450	Tqm	Quartz monzonite, various colors: yellowish brown (10YR 6/8), red, greenish-gray, and white (10YR 8/1), medium-grained quartz monzonite, 80% chips weak to moderate limonite staining, 1-2% dark green diorite (propylitized), trace hematite, 1-2% pink coarse-grained granite.
459-460	Tqm	Quartz monzonite, various colors: yellowish brown (10YR 6/8) to gray (10YR 7/8), typical medium-grained quartz monzonite, 50-60% chips weakly limonite-stained.
469-470	Tqm	Quartz monzonite, various colors: yellowish brown (10YR 6/8) to white (10YR 8/1), medium-grained quartzofeldspathic igneous rock, 40-50% chips weakly limonite-stained, 1-2% pink granite, trace hematite.
479-480	Tqm	Quartz monzonite, various colors: white (10YR 8/1), pink, red, dark green, and yellow brown (10YR 6/8), medium-grained quartzofeldspathic rock (quartz monzonite), 40% chips limonite-stained, 1% hematite, 1-2% granite, trace diorite (propylitized).
489-490	Tqm	Quartz monzonite, various colors: white (10YR 8/1) to pale yellowish brown (10YR 7/8), fine to coarse sand-sized chips composed of quartz, feldspar, and medium-grained quartz monzonite, 30-40% of chips weakly limonite-stained, ≤1% pink-orange K-feldspar (granite).
499-500	Tqm	Quartz monzonite, various colors: white (10YR 8/1) and light gray to pale yellow brown (10YR 7/8), typical medium-grained quartz monzonite, <50% of chips limonite-stained, 1% orange-pink K-feldspar (i.e., granite), trace hematite-goethite.
509-510	Tqm	Quartz monzonite, various colors: white (10YR 8/1), pink, very light gray, and yellowish brown (10YR 6/8), medium-grained quartz-feldspar-biotite igneous rock, 30-40% chips limonite-stained, 1% granite chips or orange K-feldspar, trace hematite.
519-520	Tqm	Quartz monzonite, various colors: white (10YR 8/1), pink, dark gray to green, and yellow brown (10YR 6/8), medium-grained quartz monzonite, 30-40% chips limonite-stained, <1% pink granite, <1% hematite-goethite, 1% diorite.
529-530	Tqm	Quartz monzonite, various colors: white (10YR 8/1), dark green, red, yellowish brown (10YR 6/8), fine to coarse sand-sized chips composed of quartz and feldspar, 1% diorite (propylitized), 1% hematite-goethite.
539-540	Tqm	Quartz monzonite, various colors: white (10YR 8/1), light gray and pale yellow (10YR 7/8), monolithologic medium-grained quartz monzonite, very weak limonite staining, trace hematite.
549-550	Tqm	Quartz monzonite, various colors: white (10YR 8/1), light gray, and yellow brown (10YR 6/8), fine to medium to coarse sand-sized chips composed of quartz, plagioclase, and white and orange K-feldspar, 20-30% chips limonite-stained, trace hematite.
559-560	Tqm	Quartz monzonite, various colors: white (10YR 8/1), pink, dark green, and yellow brown (10YR 6/8), medium-grained quartz monzonite, 20% chips limonite-stained, <1% diorite, 10% hematite-goethite, 1-2% granite.
569-570	Tqm	Quartz monzonite, various colors: white (10YR 8/1), pink, dark gray-green, and yellow brown (10YR 6/8), typical medium-grained quartz monzonite, 10-20% chips moderately limonite-stained, 1% diorite.
579-580	Tqm	Quartz monzonite, various colors: white (10YR 8/1), pink, and yellow brown (10YR 6/8), medium-grained quartz monzonite, 20-30% chips limonite-stained, 1-2% pink K-feldspar (granite), trace hematite and Mn-oxides.
589-590	Tqm	Quartz monzonite, various colors: white (10YR 8/1), pink, and yellow brown (10YR 6/8), mainly medium-grained quartz monzonite, 10% feldspar-hornblende porphyry with euhedral feldspars strongly sericitized, 50-60% chips moderately to strongly limonite-stained, trace hematite.
599-600	Tqm	Quartz monzonite, various colors: yellow brown (10YR 6/8), dark green, pink, and white (10YR 8/1), mainly medium-grained quartz monzonite, 10% pink K-feldspars (granite), 70-80% chips limonite-stained, trace hematite-goethite.

Geologist: J. Lawrence
Driller: WDC Exploration.
Date completed: 4-21-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 8122.534
Easting: 19424.504
Elevation: 5965.599

PHELPS DODGE
TYRONE, INC.

Well 363-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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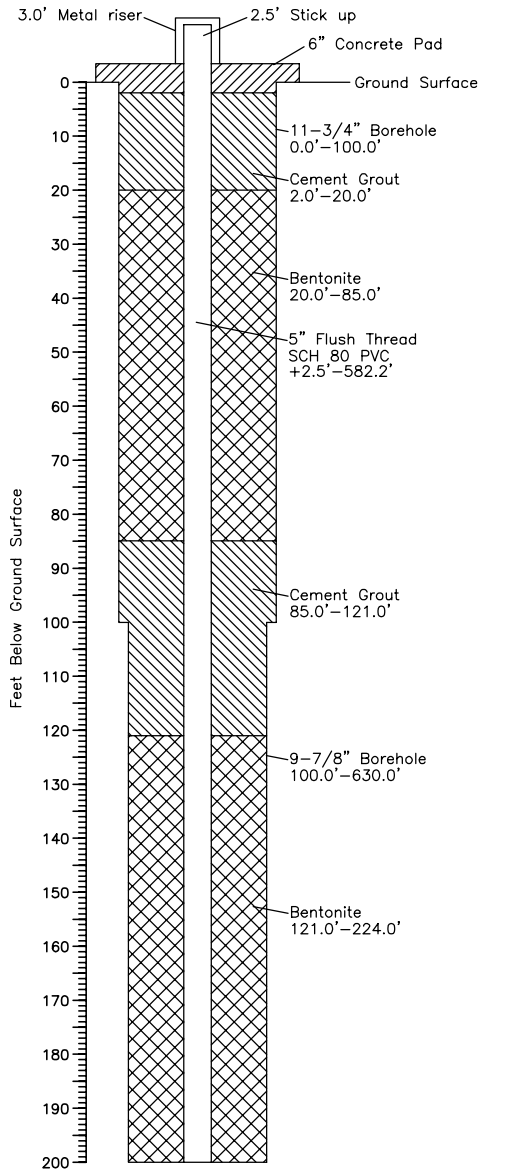

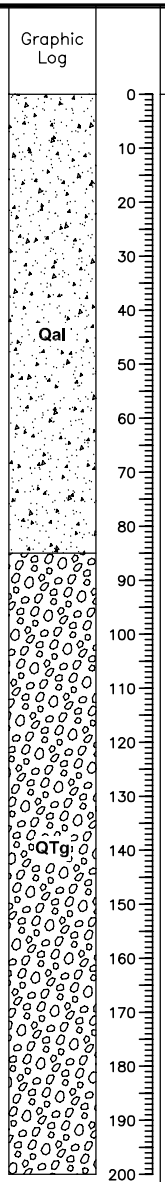

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0		
9–10	SW	Sand with gravel, strong brown (7.5YR 4/6), fine to coarse sand, trace silt, 15% gravel to 20 mm (quartz rich), poorly sorted, subrounded, moist, trace silt/clay.
19–20	SW	Sand with gravel, brown (10YR 4/3), fine to coarse sand with 20% fine gravel to 8 mm, poorly sorted, subrounded, moist, trace silt/clay.
29–30	SW	Sand with gravel, brown (7.5YR 4/4), fine to coarse sand with 20% gravel to 25 mm, poorly sorted, subangular, wet, trace silt/clay, trace biotite platelets in sand, gravel is quartz rich, Fe-oxide, sericite.
39–40	GW	Gravel, brown (7.5YR 5/4), gravel to 40 mm, granitic, 5% coarse sand, subrounded, poorly sorted, saturated.
49–50	GW	Gravel with sand, strong brown (7.5YR 5/6), 85% gravel to 40 mm, granitic, quartz rich, feldspar, trace biotite, poorly sorted, subrounded, 15% coarse sand, saturated, trace silt/clay.
59–60	GW	Gravel with sand, strong brown (7.5YR 5/6), 60% gravel to 40 mm, granitic, quartz rich, feldspar, trace biotite, poorly sorted, subrounded, 40% fine to coarse sand, saturated, trace silt/clay.
69–70	GW/SW	Gravel with sand, strong brown (7.5YR 4/6), 50% gravel to 35 mm, granitic, quartz rich, feldspar, trace biotite, poorly sorted, subrounded, 50% fine to coarse sand, saturated, trace silt/clay.
79–80	SW	Sand with gravel, strong brown (7.5YR 4/6), fine to coarse sand with small biotite platelets, subrounded, poorly sorted, 10% small gravel, 5% silt/clay, wet.
89–90	SW	Sand, brown (7.5YR 5/3), fine to coarse sand, 5% small gravel, poorly sorted, subangular to subrounded, mostly quartz, moist to wet, at 85 feet Gila Conglomerate.
99–100	SW	Sand, brown (7.5YR 5/3), fine to coarse sand, 5% small gravel, poorly sorted, subangular to subrounded, mostly quartz, very moist.
109–110	SW	Sand with gravel, brown (7.5YR 5/3), very fine to coarse sand, 10% silt/clay and 35% fine gravel (granitic mineralogy), poorly sorted, subangular to subrounded, moist.
119–120	SW	Sand, brown (7.5YR 5/3), very fine to coarse sand, 10% silt/clay, poorly sorted, subangular to subrounded, moist.
129–130	SW	Sand, brown (7.5YR 5/3), very fine to coarse sand, 10% silt/clay and 5% fine gravel, poorly sorted, subangular to subrounded, moist.
139–140	SW	Sand, brown (7.5YR 5/3), very fine to coarse sand, 10% silt/clay and 10% fine gravel, poorly sorted, subangular to subrounded, moist.
149–150	SW	Sand, brown (7.5YR 5/3), very fine to coarse sand, 10% silt/clay and <5% fine gravel, poorly sorted, subangular to subrounded, moist.
159–160	SW	Sand, brown (7.5YR 5/3), very fine to coarse sand, 10% silt/clay and <5% fine gravel, poorly sorted, subangular to subrounded, moist.
169–170	SW	Sand, brown (7.5YR 5/3), very fine to coarse sand, 10% silt/clay and <5% fine gravel, poorly sorted, subangular to subrounded, moist.
179–180	SW	Sand, brown (7.5YR 5/3), very fine to coarse sand, 10% silt/clay and <5% fine gravel, poorly sorted, subangular to subrounded, moist.
189–190	SW	Sand, strong brown (7.5YR 5/6), very fine to medium sand with 15% silt/clay, trace small gravel, poorly sorted.
199–200	SW/GW	Gravel with sand, brown (7.5YR 5/3), small gravel and fine to coarse sand in equal amounts, poorly sorted, subangular to subrounded, moist.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 6-16-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6443.260
Easting: 29562.007
Elevation: 5713.300

PHELPS DODGE
TYRONE, INC.

Well 363-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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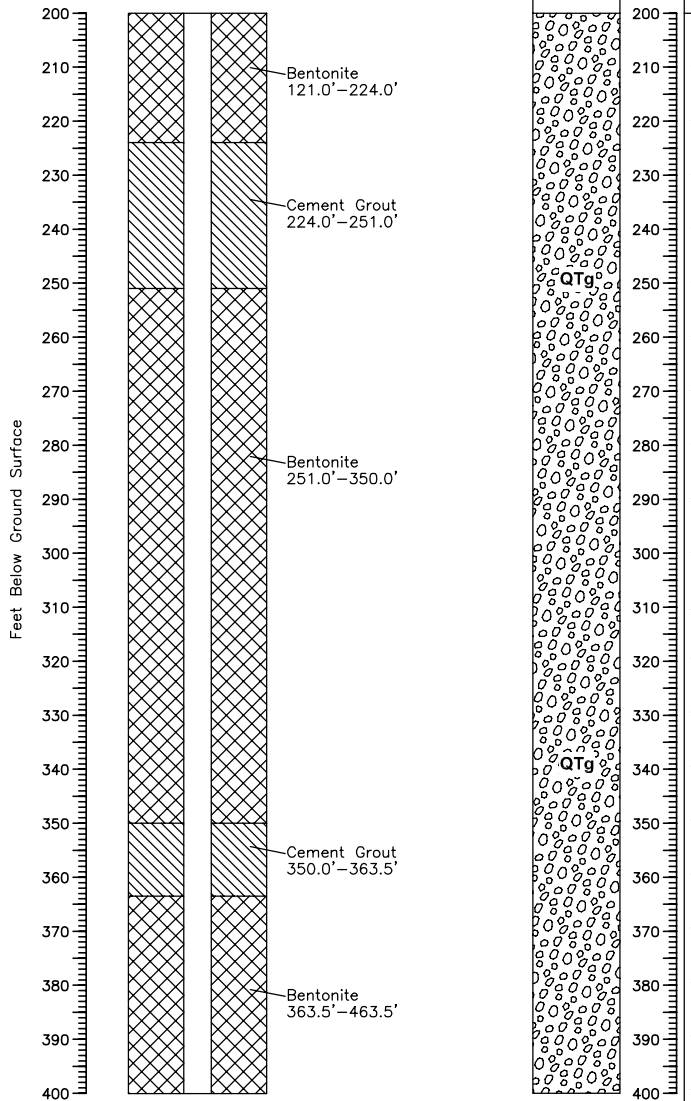

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
QTg	209–210	SW/GW	Sand with gravel/gravel with sand, brown (7.5YR 5/3), small gravel and fine to coarse sand in equal amounts, poorly sorted, subangular to subrounded, very moist.
	219–220	SW	Sand with gravel, brown (7.5YR 4/4), fine to coarse sand with trace silt/clay, 45% gravel to 20 mm, poorly sorted, subanglular, gravel/granite with quartz, pink & white feldspar, biotite, at 212 feet start fluid injection.
	229–230	GW	Gravel, yellowish red (5YR 4/6) to white, gravel with granitic mineralogy to 10 mm (quartz, white and pink feldspar, biotite, Fe–oxide, dark mineral possibly hornblende, partially dark green/chloritized), subrounded to subangular.
	239–240	GW	Gravel, yellowish red (5YR 4/6) to white, gravel with granitic mineralogy to 15 mm (quartz, white and pink feldspar, biotite, Fe–oxide, dark mineral possibly hornblende, partially dark green/chloritized), subrounded to subangular.
	249–250	GW	Gravel, yellowish red (5YR 4/6) to white, gravel with granitic mineralogy to 25 mm (quartz, white and pink feldspar, biotite, Fe–oxide, dark mineral possibly hornblende, partially dark green/chloritized), subrounded to subangular.
	259–260	GW	Gravel with sand, brown (10YR 5/3) to white, gravel +25 mm with granitic mineralogy of quartz, pink and white feldspar (K–feldspar), biotite, Fe–oxide, trace hornblende, subangular to subrounded, 25% silty sand and trace clay.
	269–270	GW/SW	Gravel with sand/sand with gravel, brown (10YR 5/3) to white, 45–50% small granitic gravel with 45–50% medium to coarse sand, trace silt/clay, subrounded.
	279–280	SW	Sand with gravel, reddish brown (5YR 4/4) to white, 60–65% medium to coarse sand with 35% small gravel, 5% silt/clay, sand composition is quartz, feldspar, biotite, Fe–oxide, minor jarosite, and hornblende, chloritized, poorly sorted.
	289–290	SW	Gravelly sand, reddish brown (5YR 4/4) to white, sand, 60–65% medium to coarse sand with 10% small gravel, 5–10% silt/clay, sand composition is quartz, feldspar, biotite, Fe–oxide, minor jarosite, and hornblende, chloritized, poorly sorted.
	299–300	SW	Sand with gravel, reddish brown (5YR 4/4) to white, sand, 60–65% medium to coarse sand with 15% small gravel, 5–10% silt/clay, sand composition is quartz, feldspar, biotite, Fe–oxide, minor jarosite, and hornblende, chloritized, poorly sorted.
	309–310	SW	Sand, reddish brown (5YR 4/4) to white, sand, 60–65% medium to coarse sand with 10% small gravel, 10% silt/clay, sand composition is quartz, feldspar, biotite, Fe–oxide, minor jarosite, and hornblende, chloritized, poorly sorted.
	319–320	SW/GW	Sand with gravel/gravel with sand, yellowish red (5YR 4/6) to white, coarse sand and small gravel in equal amounts, sand and gravel have granitic mineralogy, trace silt/clay.
	329–330	SW	Sand, yellowish red (5YR 4/6) to white, medium to coarse sand with granitic mineralogy, 10% clay/silt, 10% small gravel, poorly sorted.
QTg	339–340	SW	Sand, yellowish red (5YR 4/6) to white, medium to coarse sand with granitic mineralogy, 10% clay/silt, 15% small gravel, poorly sorted.
	349–350	GW	Gravel, yellowish red (5YR 4/6) to white, gravel of granitic mineralogy to 35 mm, 5% coarse sand, subrounded to subangular.
	359–360	GW	Gravel with sand, yellowish red (5YR 4/6) to white, small gravel with 15% coarse sand and 10% clay/silt.
	369–370	SW/GW	Sand with gravel/gravel with sand, reddish brown (5YR 4/3) to white, small gravel and medium to coarse sand in equal amounts, both granitic mineralogy, 5–10% silt/clay, poorly sorted.
	379–380	GW	Gravel, reddish brown (5YR 4/3) to white, small gravel to 10 mm with 10% coarse sand, 5–10% silt/clay.
	389–390	GW	Gravel, reddish brown (5YR 4/3) to white, granitic gravel to 20 mm, 10% coarse sand, 5% silt/clay.
	399–400	SW	Sand, reddish brown (5YR 4/3) to white, granitic composition, fine to coarse sand with 5–10% silt/clay, subangular to subrounded, poorly sorted.

Geologist: L. Rought
Driller: WDC Exploration.
Date completed: 6–16–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 6443.260
Easting: 29562.007
Elevation: 5713.300

PHELPS DODGE
TYRONE, INC.

Well 363-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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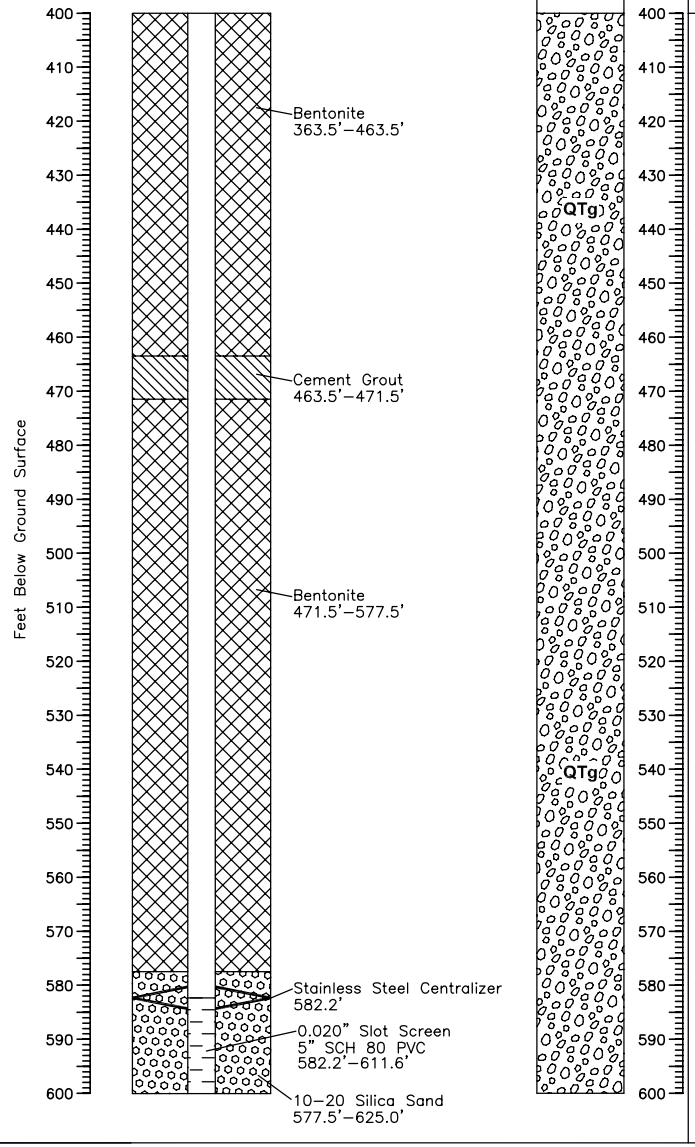

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
QTg	409–410	GW	Gravel, reddish brown (5YR 4/3) to white, granitic gravel to 15 mm, subangular to subrounded, poorly sorted.
	419–420	GW	Gravel, reddish brown (5YR 4/3) to white, granitic gravel to 25 mm with 10% coarse sand, few slightly chloritized gravel.
	429–430	GW	Gravel, reddish brown (5YR 4/3) to white, granitic gravel to 25 mm with 10% coarse sand, few slightly chloritized gravel.
	439–440	GW	Gravel with sand, reddish brown (5YR 4/3) to white, small gravel of granitic mineralogy, 20% fine to coarse sand (granitic composition), 5% clay/silt, poorly sorted, subangular to subrounded, composed of quartz, K–feldspar, biotite, Fe–oxide, and trace hornblende, partially chloritized.
	449–450	GP	Gravel, reddish brown (5YR 4/3) to white, small gravel of granitic mineralogy, 15% coarse sand (granitic composition), well sorted, 5% clay/silt, poorly sorted, subangular to subrounded, composed of quartz, K–feldspar, biotite, Fe–oxide, and trace hornblende, partially chloritized.
	459–460	SW	Sand, reddish brown (5YR 4/3) to white, fine to coarse sand, 5% small gravel, 10–15% silt/clay, poorly sorted, subangular.
	469–470	SW	Sand, reddish brown (5YR 4/3) to white, fine to coarse sand, 5% small gravel, 10–15% silt/clay, poorly sorted, subangular.
	479–480	GW	Gravel, reddish brown (5YR 4/3) to white, granitic gravel to 20 mm, subangular to subrounded, poorly sorted, 5% fine to coarse sand.
	489–490	GW	Gravel, reddish brown (5YR 4/3) to white, granitic gravel to 20 mm, subangular to subrounded, poorly sorted, 10% fine to coarse sand.
	499–500	SW	Sand, reddish brown (5YR 4/3) to white, fine to coarse sand with 20% silt/clay, poorly sorted, subangular to subrounded.
	509–510	SW	Sand, reddish brown (5YR 4/3) to white, fine to coarse sand with 20% silt/clay, poorly sorted, subangular to subrounded.
	519–520	GW	Gravel, reddish brown (5YR 4/3) to greenish brown to white, gravel to 25 mm, granitic mineralogy, dark green mineral chlorite, 10% coarse sand, poorly sorted, subangular to subrounded.
	529–530	SW	Sand, reddish brown (5YR 4/3) to white, fine to coarse sand with 25% silt/clay, 5% fine gravel.
QTg	539–540	SW	Sand, reddish brown (5YR 4/3), mostly medium to coarse sand, <5% silt/clay, trace small gravel, subrounded, poorly sorted.
	549–550	SW/GW	Sand with gravel/gravel with sand, reddish brown (5YR 4/3), equal amounts of medium to coarse sand and gravel, 5% silt/clay.
	559–560	SW	Sand with gravel/gravel with sand, reddish brown (5YR 4/3), medium to coarse sand, small gravel in equal amounts, 10% silt/clay, poorly sorted, subrounded, granitic minerals.
	569–570	SW	Sand, reddish brown (5YR 4/3), medium to coarse sand, small gravel in equal amounts, 10% silt/clay, poorly sorted, subrounded, granitic minerals.
	579–580	SW	Sand, reddish brown (5YR 4/3), medium to coarse sand, small gravel in equal amounts, 10% silt/clay, poorly sorted, subrounded, granitic minerals.
	589–590	SW	Sand, reddish brown (5YR 4/3), medium to coarse sand, small gravel in equal amounts, 10% silt/clay, poorly sorted, subrounded, granitic minerals.
	599–600	SW	Sand, reddish brown (5YR 4/3), medium to coarse sand, small gravel in equal amounts, 10% silt/clay, poorly sorted, subrounded, granitic minerals.

Geologist: L. Rought
Driller: WDC Exploration.
Date completed: 6–16–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 6443.260
Easting: 29562.007
Elevation: 5713.300

PHELPS DODGE
TYRONE, INC.

Well 363-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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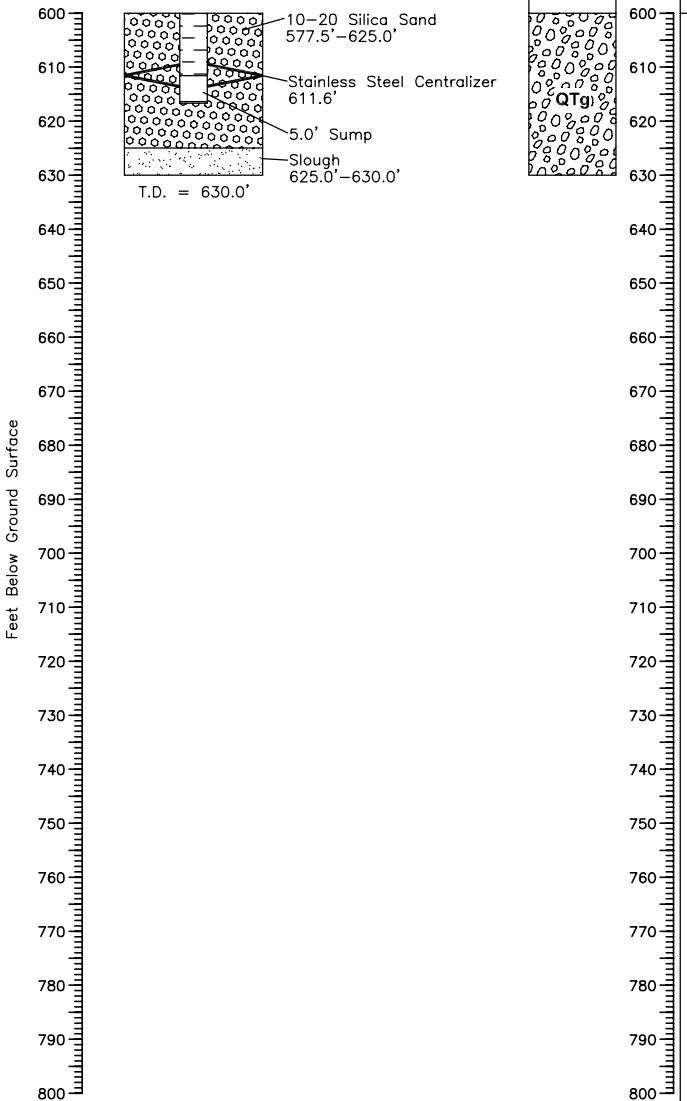

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
609-610	SW	Sand, dark reddish brown (5YR 3/3) to white, medium to coarse sand with trace silt/clay, poorly sorted, subrounded to subangular, granitic mineralogy, Fe-oxide.
619-625	SW	Sand, dark reddish brown (5YR 3/3) to white, medium to coarse sand with trace silt/clay, poorly sorted, subrounded to subangular, granitic mineralogy, Fe-oxide.
629-630	SW/GW	Sand with gravel/gravel with sand, dark reddish brown (5YR 3/3) to white, medium to coarse sand and small gravel in equal amounts, poorly sorted, subrounded to subangular, granitic mineralogy, Fe-oxide.

Geologist: L. Rought
Driller: WDC Exploration.
Date completed: 6-16-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6443.260
Easting: 29562.007
Elevation: 5713.300

PHELPS DODGE
TYRONE, INC.

Well 363-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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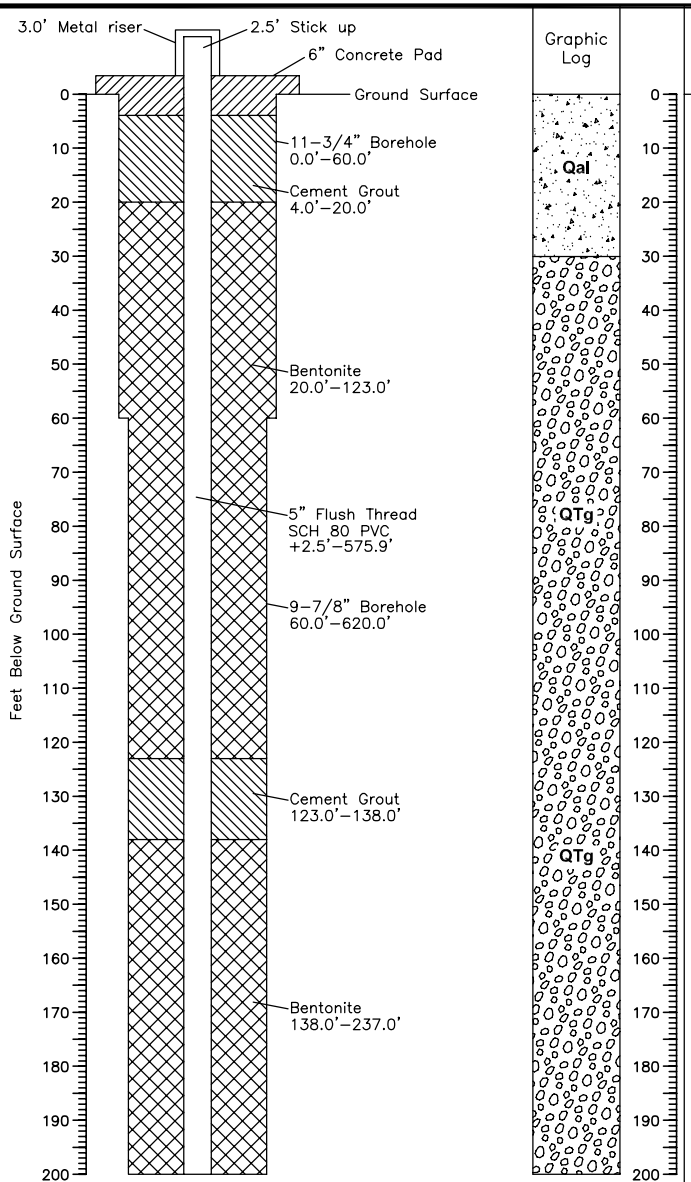

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
9–10	SW	Silty sand with gravel, strong brown (7.5YR 5/6), very fine to coarse sand with 15% clay/silt and 20% fine gravel to 25 mm diameter, subangular, poorly sorted, moist, gravel of granitic mineralogy.
19–20	SW	Sand, strong brown (7.5YR 4/6), fine to coarse sand with trace clay/silt and 5% fine gravel to 10 mm diameter, poorly sorted, subangular, moist, gravel is of granitic mineralogy, fines consist of quartz, trace biotite, pink and white feldspar, Fe-oxide.
29–30	SW	Sand, dark brown (7.5YR 3/4), fine to coarse sand with trace clay/silt and 5% fine gravel to 10 mm diameter, poorly sorted, subangular, moist, gravel is of granitic mineralogy, fines consist of quartz, trace biotite, pink and white feldspar, Fe-oxide. At 30–32 feet change from Qal to QTg.
39–40	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with 10% silt/clay, 10–15% fine gravel to 20 mm diameter of granitic mineralogy, fines consist of quartz, trace biotite, trace Fe-oxide, pink and white feldspar, poorly sorted, subangular to subrounded, moist.
49–50	SW	Sand, brown (7.5YR 5/4), fine to coarse sand with 10% silt/clay, 15–20% gravel to 30 mm diameter of granitic mineralogy, fines consist of quartz, trace biotite, trace Fe-oxide, pink and white feldspar, poorly sorted, subangular to subrounded, moist.
59–60	SW	Sand with gravel, brown (7.5YR 5/4), fine to coarse sand with 10% silt/clay, 20–25% gravel to 30 mm diameter of granitic mineralogy, fines consist of quartz, trace biotite, trace Fe-oxide, pink and white feldspar, poorly sorted, subangular to subrounded, dry to moist.
69–70	SW	Sand with gravel, brown (7.5YR 5/4), fine to coarse sand with 10% silt/clay, 20–25% gravel to 30 mm diameter of granitic mineralogy, fines consist of quartz, trace biotite, trace Fe-oxide, pink and white feldspar, poorly sorted, subangular to subrounded, dry to moist.
79–80	SW	Sand with gravel, brown (7.5YR 5/4), fine to coarse sand with 10% silt/clay, 40% gravel to 30 mm diameter of granitic mineralogy, fines consist of quartz, trace biotite, trace Fe-oxide, pink and white feldspar, poorly sorted, subangular to subrounded, dry to moist.
89–90	SW	Sand with gravel, brown (7.5YR 5/4), fine to coarse sand with 10% silt/clay, 15–20% fine gravel to 30 mm diameter of granitic mineralogy, fines consist of quartz, trace biotite, trace Fe-oxide, pink and white feldspar, poorly sorted, subangular to subrounded, dry to moist.
99–100	SW	Sand with gravel, brown (7.5YR 5/4), very fine to coarse sand, 10–15% silt/clay, 20% gravel to 35 mm diameter, mostly quartz, feldspar is pink and white, trace biotite and Fe-oxide, poorly sorted, subangular to subrounded, moist, rock chips mostly quartz, white feldspar, biotite.
109–110	SW	Sand with gravel, brown (7.5YR 5/4), very fine to coarse sand, 10–15% silt/clay, 15% fine gravel to 35 mm diameter, mostly quartz, feldspar is pink and white, trace biotite and Fe-oxide, poorly sorted, subangular to subrounded, moist, rock chips mostly quartz, white feldspar, biotite.
119–120	GW	Gravel, color varies, mostly strong brown (7.5YR 5/6) to dusky red and gray, 10% medium to coarse sand, rock fragments mostly quartz, some chips porphyritic with white feldspars (sericite/clay alteration) and quartz, trace biotite, Fe-oxide, gravel to 30 mm diameter, angular, started to inject water.
129–130	SM	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), mostly medium to coarse sand with trace fine gravel and 10–15% silt/clay.
139–140	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), mostly medium to coarse sand with trace fine gravel and 10–15% silt/clay.
149–150	SW/GW	Sand with gravel/gravel with sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), equal amounts of medium to coarse sand and fine gravel to 10 mm diameter with 20% silt/clay.
159–160	SW/GW	Sand with gravel/gravel with sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), equal amounts of medium to coarse sand and gravel to 10 mm diameter (slightly coarser than above) with 20% silt/clay.
169–170	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), fine to coarse sand with 10% fine gravel and 10% silt/clay.
179–180	GW	Gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), fine gravel to 20 mm diameter with 10–15% coarse sand and 15% silt/clay.
189–190	SW	Sand with gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), mostly medium to coarse sand with 30% gravel and 20% silt/clay.
199–200	SW	Sand with gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), mostly medium to coarse sand with 30% gravel and 5–10% silt/clay.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 6-21-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6821.130
Easting: 30095.706
Elevation: 5744.738

PHELPS DODGE
TYRONE, INC.

Well 363-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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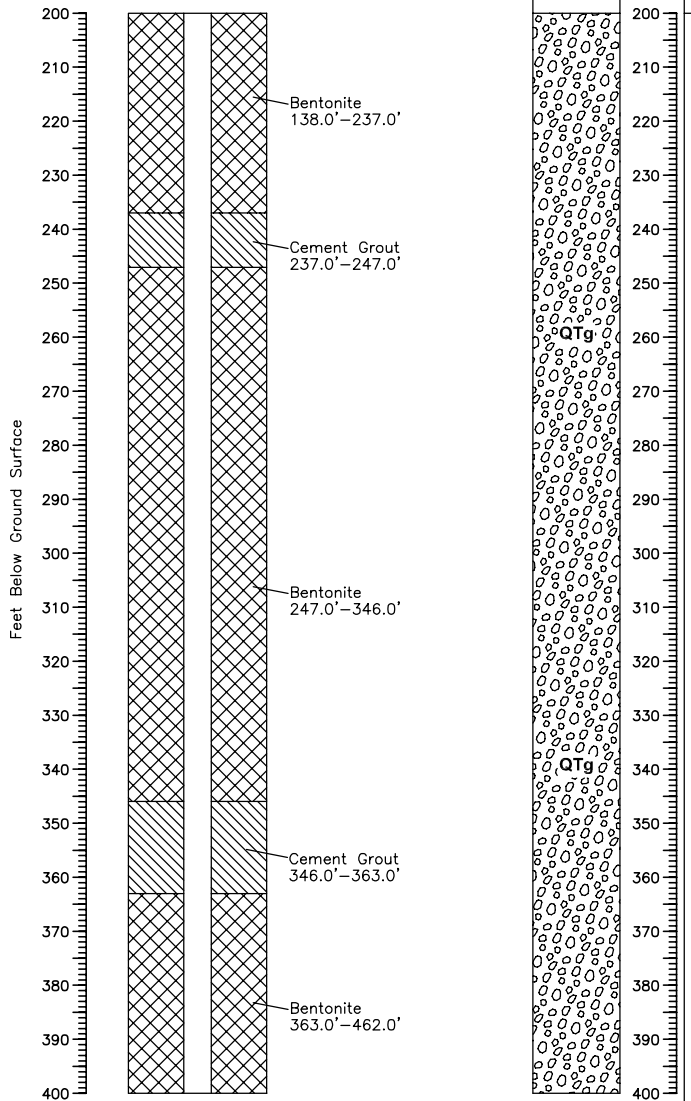

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209–210	SW	Sand with gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), mostly medium to coarse sand with 20% gravel and 20–25% silt/clay.
219–220	SW	Sand with gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), mostly medium to coarse sand with 20% gravel and 20–25% silt/clay.
229–230	GW	Gravel with sand, gray to reddish brown (5YR 5/3), gravel with 15% fine to coarse sand and 5% silt/clay, rock fragments subangular to subrounded, mostly quartz, pink feldspar and feldspar altered to sericite, possibly argillized, trace biotite, trace of dark fine-grained sandstone, some fragments appear porphyritic.
239–240	GW	Gravel with sand, gray to reddish brown (5YR 5/3), gravel with 25–30% sand and 5% silt/clay, rock fragments subangular to subrounded, mostly quartz, pink feldspar and feldspar altered to sericite, possibly argillized, trace biotite, trace of dark fine-grained sandstone, some fragments appear porphyritic.
249–250	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), fine to medium sand, 15–20% silt/clay, 10–15% fine gravel.
259–260	SW	Sand with gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), fine to medium sand, 15–20% silt/clay, 20% fine gravel.
269–270	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), fine to medium sand, 15–20% silt/clay, 5% fine gravel.
279–280	GW	Gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 10% coarse sand, 5–10% silt/clay, 5% fine gravel.
289–290	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 10% coarse sand, 40% silt/clay, 5% gravel.
299–300	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 10% coarse sand, 20% silt/clay, 15% gravel.
309–310	GW	Gravel, gray-yellowish brown/red gravel to 25 mm diameter with 10% coarse sand and 1% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded, poorly sorted.
319–320	GW	Gravel, gray-yellowish brown/red gravel to 25 mm diameter with 10% coarse sand and 1% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded, poorly sorted.
329–330	SW/GW	Gravel and sand in equal amounts, gray-yellowish brown/red, gravel to 25 mm diameter, 10–15% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded, poorly sorted.
339–340	SW/GW	Gravel and sand in equal amounts, gray-yellowish brown/red, gravel to 25 mm diameter, 10–15% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded, poorly sorted.
349–350	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), medium to coarse sand with 5–10% fine gravel and 15% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded.
359–360	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), medium to coarse sand with 5–10% fine gravel and 15% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded.
369–370	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), medium to coarse sand with 5–10% fine gravel and 15% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded.
379–380	SW	Sand with gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), medium to coarse sand with 20% fine gravel and 10–15% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded.
389–390	GW	Gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 10% coarse sand, 1% silt/clay, rock fragments mostly porphyritic with quartz-rich ground mass and feldspar phenocrysts which have been altered to sericite/clay, some pink feldspar fragments and trace of dark-colored sandstone, Fe-oxide and quartz common, subangular to subrounded.
399–400	SW	Sand with gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 15% gravel and 25–30% silt/clay.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 6-21-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6821.130
Easting: 30095.706
Elevation: 5744.738

PHELPS DODGE
TYRONE, INC.

Well 363-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05 JN ES05_0070

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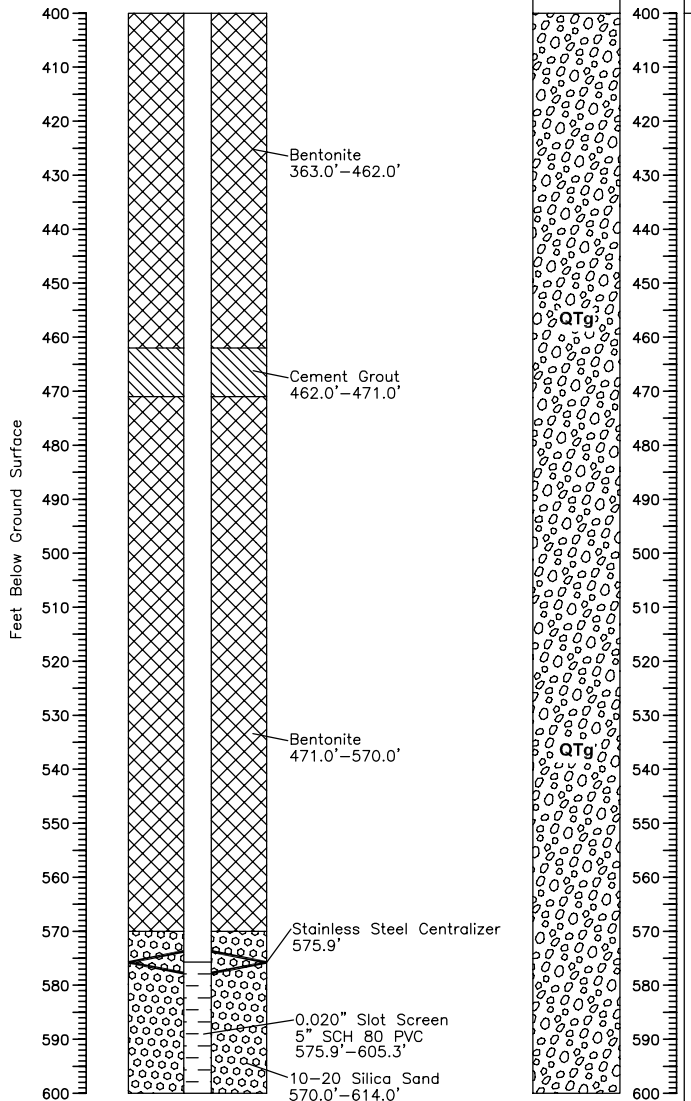

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
409-410	GW	Gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 5% coarse sand and 1% silt/clay.
419-420	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 5% gravel and 25% silt/clay.
449-430	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 5% gravel and 35% silt/clay.
439-440	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 5% gravel and 35% silt/clay.
449-450	SW	Sand, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), 5% gravel and 35% silt/clay.
459-460	GW	Gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), fine gravel with 10% coarse sand and 5-10% silt/clay.
469-470	GW	Gravel, brown (7.5YR 5/4) to reddish yellow (7.5YR 6/6), fine gravel with 10% coarse sand and 5-10% silt/clay.
479-480	SW	Sand, strong brown (7.5YR 5/6), fine to coarse sand, trace fine gravel, 30-35% silt/clay, poorly sorted, subangular to subrounded, quartz, feldspar, trace biotite, Fe-oxide.
489-490	GW	Gravel, strong brown (7.5YR 5/6) to reddish yellow (7.5YR 6/6), 10% coarse sand, <5% silt/clay, poorly sorted, subangular to subrounded, quartz, feldspar, trace biotite, Fe-oxide, some porphyritic fragments.
499-500	SW	Sand, strong brown (7.5YR 5/6) to reddish yellow (7.5YR 6/6), 20% silt/clay, poorly sorted, subangular to subrounded, quartz, feldspar, trace biotite, Fe-oxide, some porphyritic fragments.
509-510	SW/GW	Sand/gravel in equal amounts and <5% silt/clay.
519-520	SW/GW	Sand/gravel in equal amounts and <5% silt/clay.
529-530	SW	Sand with 60% silt/clay.
539-540	SW	Sand with 45% silt/clay and 5-10% fine gravel.
549-550	SW	Sand with 30% silt/clay and 15% fine gravel.
559-560	SW	Sand, brown (7.5YR 5/3 and 4/3), fine to mostly medium and coarse sand with trace of fine gravel and <5% silt/clay, poorly sorted, subrounded, Fe-oxide less abundant.
569-570	SW	Sand, brown (7.5YR 5/3 and 4/3), fine to mostly medium and coarse sand with trace of fine gravel and 30% silt/clay, poorly sorted, subrounded, Fe-oxide less abundant.
579-580	SW	Sand, brown (7.5YR 5/3 and 4/3), fine to mostly medium and coarse sand with trace of fine gravel and 30% silt/clay, poorly sorted, subrounded, Fe-oxide less abundant.
589-590	SW	Sand, brown (7.5YR 5/3 and 4/3), fine to mostly medium and coarse sand with trace of fine gravel and 30% silt/clay, poorly sorted, subrounded, Fe-oxide less abundant.
599-600	SW	Sand, brown (7.5YR 5/3 and 4/3), fine to mostly medium and coarse sand with trace of fine gravel and 30% silt/clay, poorly sorted, subrounded, Fe-oxide less abundant.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 6-21-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6821.130
Easting: 30095.706
Elevation: 5744.738

PHELPS DODGE
TYRONE, INC.

Well 363-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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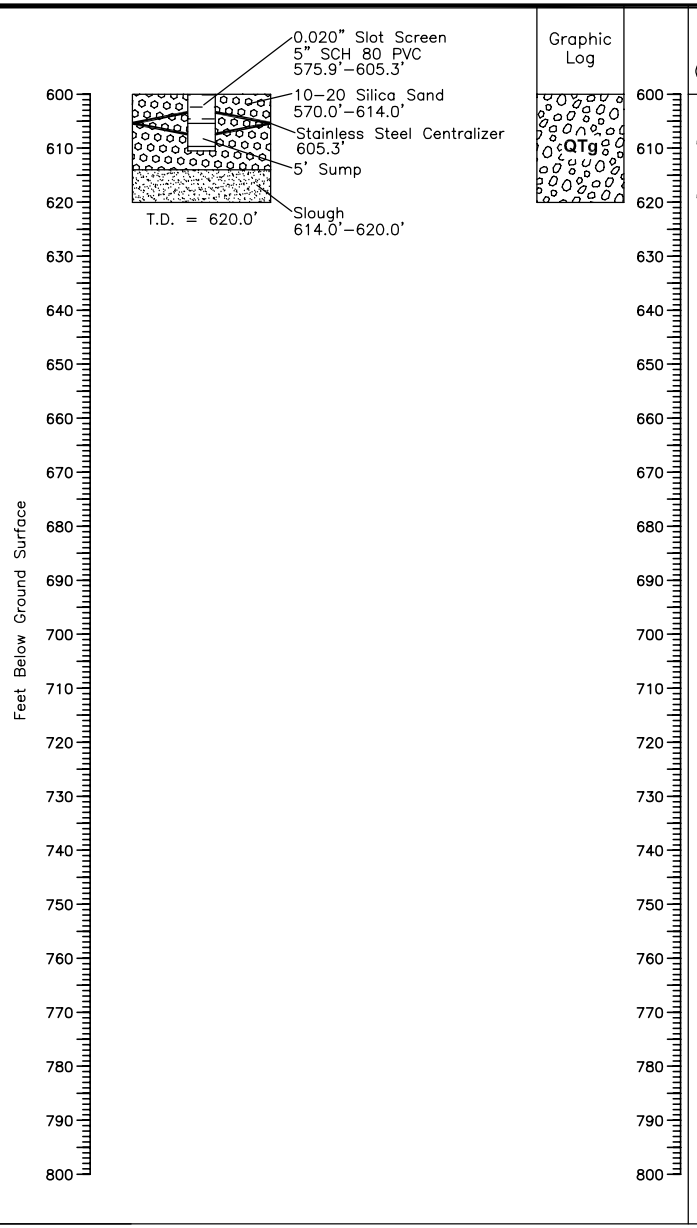

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
609-610	SW	Sand, brown (7.5YR 5/3) to strong brown (7.5YR 5/6), medium- to coarse-grained, trace gravel, 45% silt/clay, Fe-oxide more abundant.
619-620	SW/GW	Sand and gravel in equal amounts, brown (7.5YR 5/3) to strong brown (7.5YR 5/6), medium- to coarse-grained, trace gravel, 45% silt/clay, Fe-oxide more abundant.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 6-21-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6821.130
Easting: 30095.706
Elevation: 5744.738

PHELPS DODGE
TYRONE, INC.

Well 363-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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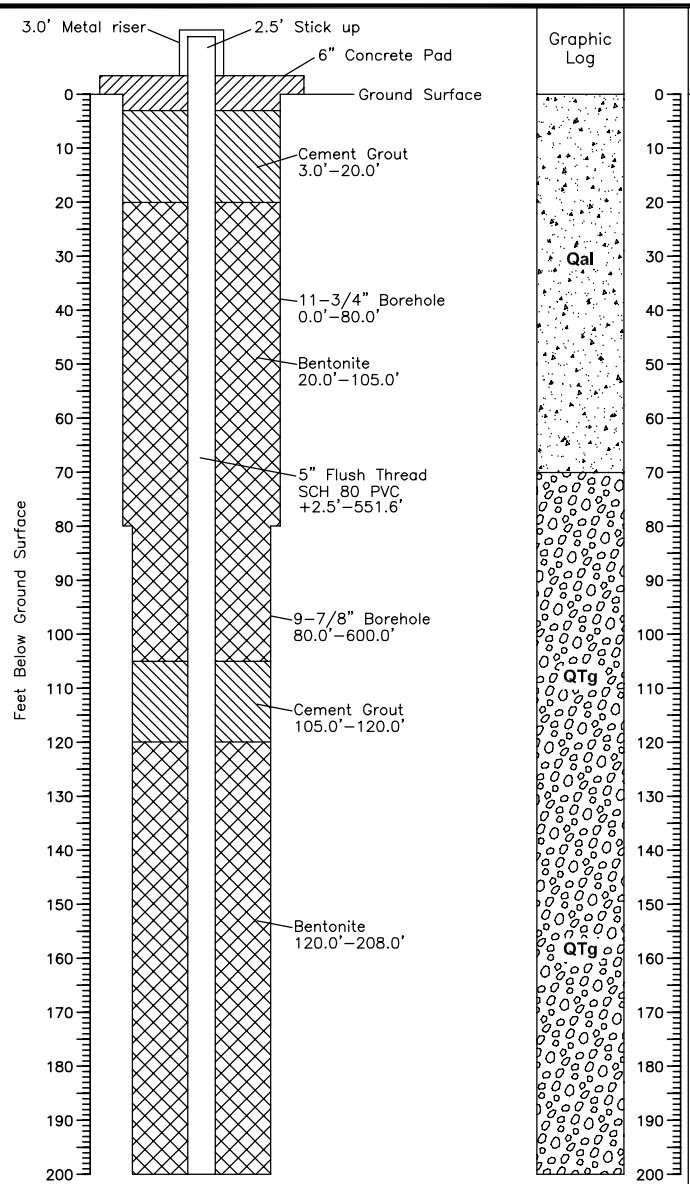

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
9–10	SM	Silty sand, brown (7.5YR 4/4), fine silty sand, 40% silt, trace small gravel, subangular, well sorted, dry.
19–20	SW	Sand, light brown (7.5YR 6/3), fine to mostly coarse sand, trace silt, trace fine gravel of monzonitic/granitic mineralogy with majority being quartz, trace feldspar, biotite, Fe-oxide, sand subangular to subrounded, poorly sorted, dry.
29–30	SW	Sand, reddish brown (5YR 4/4), mostly medium and coarse sand with trace silt/clay, 10% small gravel, few fragments to 30 mm diameter, sand poorly sorted, subangular, very moist to wet, gravel monzonite but mostly quartz/biotite.
39–40	SW	Sand, brown (7.5YR 5/3), mostly medium and coarse sand with trace silt/clay, 15% small gravel, few fragments to 30 mm diameter, sand poorly sorted, subangular, very moist, gravel monzonite but mostly quartz/biotite.
49–50	SW	Sand, brown (7.5YR 4/4), mostly medium and coarse sand with trace silt/clay, 10% small gravel, few fragments to 30 mm diameter, sand poorly sorted, subangular, very moist to wet, gravel monzonite but mostly quartz/biotite.
59–60	SW	Sand, brown (7.5YR 4/4), mostly medium and coarse sand with trace silt/clay, 10% small gravel, few fragments to 30 mm diameter, sand poorly sorted, subangular, very moist to wet, gravel monzonite but mostly quartz/biotite.
69–70	SW	Sand, reddish brown (5YR 4/4), fine to mostly coarse sand with 5–10% fine gravel, poorly sorted, subrounded to subangular, very moist to wet, mineralogy is mostly quartz, some feldspar, trace biotite (monzonitic), at 70 feet contact Gila Conglomerate.
79–80	SW	Sand, brown (7.5YR 5/4), very fine to coarse sand, trace silt/clay, <5% fine gravel (mostly quartz, 5–8 mm diameter), poorly sorted, subangular, very moist.
89–100	SW	Sand, brown (7.5YR 5/4), very fine to coarse sand, trace silt/clay, <5% fine gravel (mostly quartz, 5–8 mm diameter), poorly sorted, subangular, very moist.
99–100	SW	Sand, brown (7.5YR 5/4), very fine to coarse sand, 5–10% silt/clay, <5% fine gravel (mostly quartz, 5–8 mm diameter), poorly sorted, subangular, very moist.
109–110	SW	Sand, brown (7.5YR 5/4), very fine to coarse sand, 5–10% silt/clay, <5% fine gravel (mostly quartz, 5–8 mm diameter), poorly sorted, subangular, very moist.
119–120	SW	Sand, brown (7.5YR 5/4), very fine to coarse sand, 5–10% silt/clay, <5% fine gravel (mostly quartz, 5–8 mm diameter), poorly sorted, subangular, very moist.
129–130	SW	Sand, brown (7.5YR 5/4), very fine to coarse sand, 5–10% silt/clay, <5% fine gravel (mostly quartz, 5–8 mm diameter), poorly sorted, subangular, moist.
139–140	SW	Sand with gravel, brown (7.5YR 5/4), fine to coarse sand with 15% small gravel and trace silt/clay, poorly sorted, subangular, moist.
149–150	SW	Sand, brown (7.5YR 5/4), fine to mostly medium and coarse sand, 5% silt/clay, poorly sorted, subangular, moist, trace fine gravel (5 mm diameter).
159–160	SM	Silty sand, brown (7.5YR 5/4), very fine to coarse but mostly fine to medium sand with 20% silt and trace clay, poorly sorted, moist to dry. Injecting water after 160 feet.
169–170	GP	Gravel, brown (7.5YR 5/3), fine gravel to 15 mm diameter, mineralogy granitic: mostly quartz, some feldspar, trace biotite, well sorted, subrounded.
179–180	GP	Gravel, brown (7.5YR 5/3), fine gravel to 15 mm diameter with 25% coarse sand, mineralogy granitic: mostly quartz, some feldspar, trace biotite, well sorted, subrounded.
189–190	GP	Gravel, brown (7.5YR 5/3), fine gravel to 10 mm diameter, mineralogy granitic: mostly quartz, some feldspar, trace biotite, well sorted, subrounded.
199–200	GP	Gravel with sand, brown (7.5YR 5/3), fine gravel to 10 mm diameter with 20% coarse sand and trace silt/clay, subrounded, well sorted.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 7-1-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6929.303
Easting: 22282.653
Elevation: 5884.415

PHELPS DODGE
TYRONE, INC.

Well 363-2005-04

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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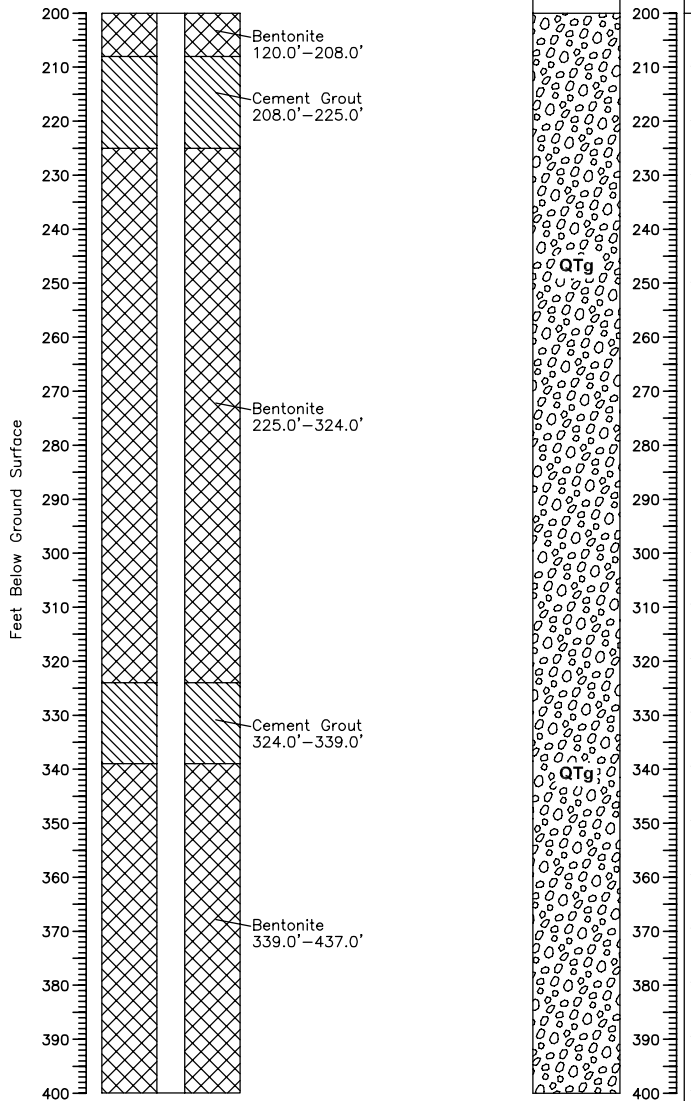

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209-210	GW	Gravel with sand, brown (7.5YR 5/3), gravel to 30 mm diameter with 15% coarse sand, trace silt/clay, subrounded, poorly sorted.
219-220	GW	Gravel with sand, brown (7.5YR 5/3), gravel to 30 mm diameter with 15% coarse sand, trace silt/clay, subrounded, poorly sorted.
229-230	GW	Gravel with sand, brown (7.5YR 5/3), gravel to 30 mm diameter with 15% coarse sand, 10% silt/clay, subrounded, poorly sorted.
239-240	GW	Gravel with sand, brown (7.5YR 5/3), gravel to 30 mm diameter with 15% coarse sand, 10% silt/clay, subrounded, poorly sorted.
249-250	SW	Sand with gravel, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, fine to coarse sand with 20% fine gravel (5 mm diameter) and 15% clay/silt, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
259-260	SW	Sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, fine to coarse sand, trace fine gravel, 10% silt/clay, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
269-270	SW	Sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, fine to coarse sand, gravel to 30 mm diameter, 10% silt/clay, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
279-280	GW	Gravel with sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, mostly small gravel (trace gravel to 35 mm diameter) with 20% coarse sand, 5-10% clay/silt, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
289-290	GW	Gravel with sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, mostly small gravel (trace gravel to 35 mm diameter) with 20% coarse sand, 5-10% clay/silt, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
299-300	GW	Gravel with sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, fine gravel to 10 mm diameter, 5-10% clay/silt, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
309-310	GW	Gravel with sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, gravel to 25 mm diameter, trace clay/silt, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
319-320	GW	Gravel, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white and dark greenish gray, gravel to 35 mm diameter, 5% coarse sand, trace silt/clay, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
329-330	GW	Gravel, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white and dark greenish gray, gravel to 35 mm diameter, 5% coarse sand, trace silt/clay, subangular, poorly sorted, quartz, feldspar, trace biotite, trace Fe-oxide, trace dark mineral is possibly hornblende, feldspar is pink and white, trace dark gravel is possibly andesitic.
339-340	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine to coarse sand, mostly monzonitic in composition, 10-15% clay/silt, Fe-oxide, poorly sorted, subangular, trace fine gravel (5-7 mm diameter).
349-350	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine to coarse sand, mostly quartz, some feldspar, trace biotite, 10-15% clay/silt, 5% fine gravel, poorly sorted, subangular.
359-360	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine to coarse sand, mostly quartz, some feldspar, trace biotite, 5-10% clay/silt, 10% fine gravel, poorly sorted, subangular.
369-370	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, 10% coarse sand, trace silt/clay, gravel of monzonitic composition, subangular, poorly sorted (size to 25 mm diameter).
379-380	GW	Gravel with sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, 20% coarse sand, 5% silt/clay, gravel of monzonitic composition, subangular, poorly sorted (size to 25 mm diameter).
389-390	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine to coarse sand with 10% silt/clay and trace fine gravel, gravel of monzonitic composition, subangular, poorly sorted, Fe-oxide.
399-400	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine to coarse sand with 10% silt/clay and trace fine gravel, gravel of monzonitic composition, subangular, poorly sorted, Fe-oxide.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 7-1-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6929.303
Easting: 22282.653
Elevation: 5884.415

PHELPS DODGE
TYRONE, INC.

Well 363-2005-04

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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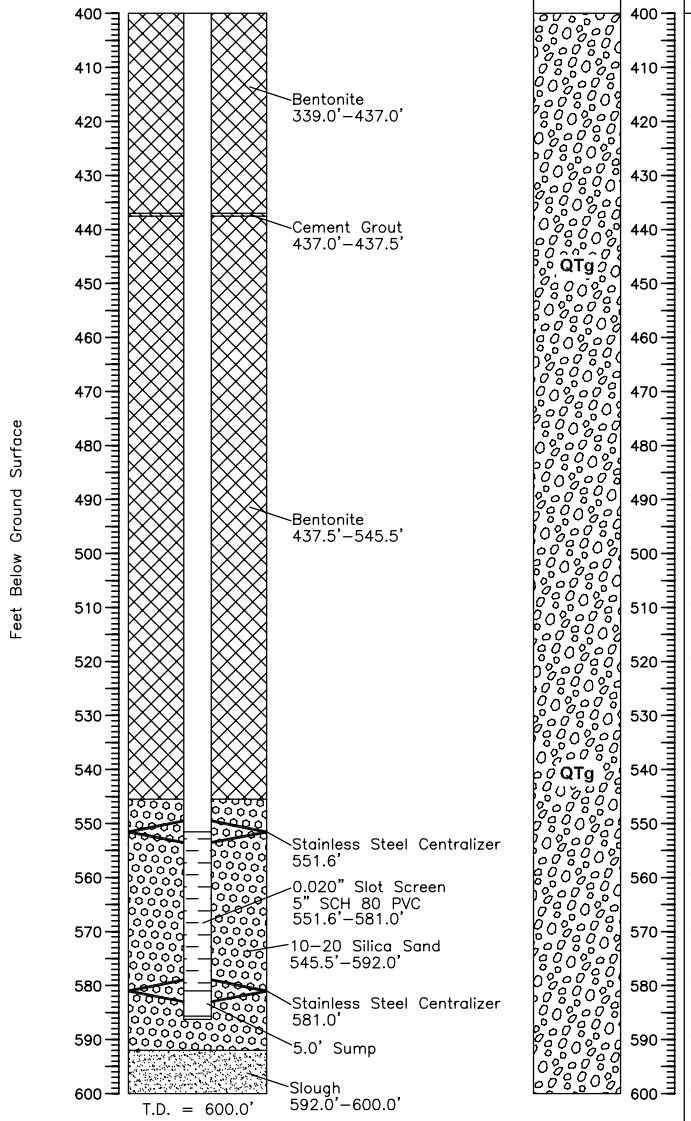

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
409-410	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine to coarse sand with 10% silt/clay and trace fine gravel, gravel of monzonitic composition, subangular, poorly sorted, Fe-oxide.
419-420	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine to coarse sand with 10% silt/clay and trace fine gravel, gravel of monzonitic composition, subangular, poorly sorted, Fe-oxide.
429-430	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine gravel to 15 mm diameter, mostly monzonitic composition, very few dark colors (possibly andesitic).
439-440	SW	Sand with gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine to coarse sand with 30% fine gravel and 10% silt/clay, monzonitic composition, subangular, poorly sorted, Fe-oxide.
449-450	SW	Sand with gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, medium to coarse sand with 5-10% silt/clay and 40% fine gravel, monzonitic composition, subangular, poorly sorted, gravel to 15 mm diameter, Fe-oxide staining.
459-460	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, 5-10% fine gravel to 10 mm diameter, 5-10% silt/clay, fine to coarse sand, Fe-oxide staining.
469-470	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine gravel to 25 mm diameter, monzonitic composition, Fe-oxide staining, poorly sorted, subangular.
479-480	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine gravel to 25 mm diameter, monzonitic composition, Fe-oxide staining, poorly sorted, subangular.
489-490	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, gravel to 10 mm diameter, monzonitic composition, Fe-oxide staining, poorly sorted, subangular.
499-500	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, gravel to 10 mm diameter, monzonitic composition, Fe-oxide staining, poorly sorted, subangular.
509-510	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, medium to coarse sand, 10% silt/clay, monzonitic composition, trace fine gravel, Fe-oxide staining, subangular, poorly sorted.
519-520	SW	Sand with gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, medium to mostly coarse sand with 30% fine gravel to 8 mm diameter, monzonitic composition, trace dark gravel (possibly andesite), green mineral (possibly epidot), poorly sorted, subangular, 10% silt/clay, consolidated.
529-530	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine gravel to 15 mm diameter, 5% coarse sand, <1% silt/clay, monzonitic composition, subangular to subrounded, poorly sorted, Fe-oxide staining (minor).
539-540	GP	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine gravel to 10 mm diameter, monzonitic composition, subrounded to subangular, well-sorted, Fe-oxide staining (minor).
549-550	SW/GW	Sand with gravel/gravel with sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, equal amounts of fine gravel and medium to coarse sand, poorly sorted, subangular to subrounded, Fe-oxide staining.
559-560	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine gravel with 10% coarse sand, poorly sorted, subangular, Fe-oxide staining, monzonitic composition.
569-570	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine gravel with 30% coarse sand, poorly sorted, subangular, Fe-oxide staining, monzonitic composition.
579-580	GW	Gravel, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, fine gravel with 15% coarse sand, poorly sorted, subangular, Fe-oxide staining, monzonitic composition.
589-590	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, very fine to coarse (mostly fine to medium) sand, 15% silt/clay, monzonitic composition, Fe-oxide minor, subangular to subrounded, poorly sorted.
599-600	SW	Sand, brown (7.5YR 3/4) to strong brown (7.5YR 4/6) and white, very fine to coarse (mostly fine to medium) sand, 15% silt/clay, monzonitic composition, Fe-oxide minor, subangular to subrounded, poorly sorted.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 7-1-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6929.303
Easting: 22282.653
Elevation: 5884.415

PHELPS DODGE
TYRONE, INC.

Well 363-2005-04

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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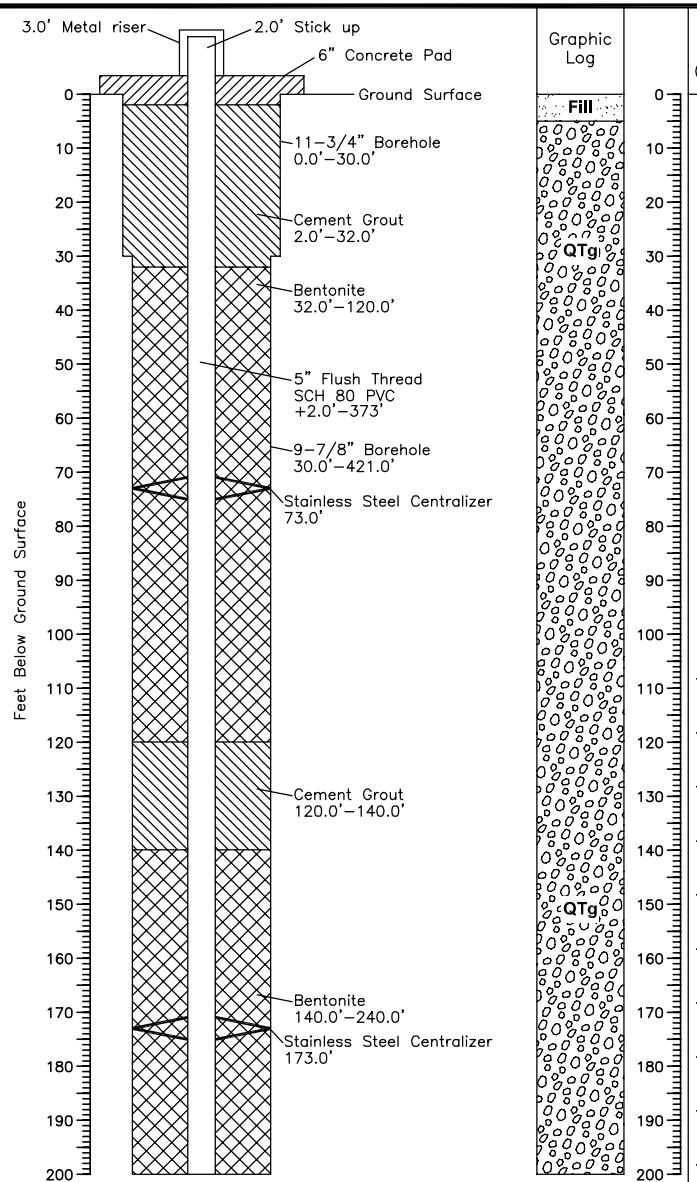

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–5	Fill	Construction fill.
9–10	SW	Sand with gravel, reddish brown (10R 4/6), well graded, medium- to very coarse-grained sand, grains angular to subangular, <5% fines, 10–15% pebbles (up to 1.5 cm), composition of grains: granitic and quartz-feldspar-biotite (quartz monzonite), slightly moist, not calcareous.
19–20	SW	Gravelly sand, yellowish brown (10YR 5/4), well graded, fine to very coarse sand, grains angular, <5% fines, 15–20% gravel, angular pebbles (≤1 cm), composed of quartz, granite, and altered quartz monzonite (mineralized, pyrite), slightly moist, not calcareous.
29–30	SW	Gravelly sand, yellowish brown (10YR 5/4), well graded, fine to very coarse sand, angular grains, ≤5% clay/silt, angular pebbles (≤3 cm), 15–20% grains composed of granite, mineralized quartz monzonite, and quartz, slightly moist, not calcareous.
39–40	SW	Gravelly sand, brown (5YR 4/4), well graded, fine to very coarse sand, grains angular to subangular, <5% fines, 20–25% pebble-size clasts and fragments (≤3 cm), composed of felsic quartz-feldspar rock(s) (granitic) with local quartz-veins, dry, not calcareous.
49–50	SW	Sand, well graded, pink-yellowish brown (10YR 6/2), fine to coarse sand, grains angular, <5% fines, <5% pebble gravel (≤1 cm), granitic composition: quartz, feldspar, and biotite.
59–60	SW	Gravelly sand, pink-yellowish brown (10YR 6/2), fine to coarse sand, grains angular, <5% fines, 20–25% pebble gravel (≤3 cm), subrounded clasts of granitic composition.
69–70	SW	Sand, well graded, pale yellowish brown (10YR 6/2), fine to very coarse sand, grains angular, <5% fines, <5% pebble gravel (≤0.5 cm), minor copper oxide minerals, dry, not calcareous.
79–80	SW	Sand, well graded, pale yellowish brown (10YR 6/2), fine to coarse sand, grains angular, <3% fines, <2% pebble gravel, general composition of grains granitic (quartz, feldspar, and biotite), dry, not calcareous.
89–100	SW	Sand, well graded, brown (5YR 4/4), fine to coarse sand, grains angular, granite composition, dry, not calcareous.
99–100	SW	Sand, well graded, brown (5YR 4/4), fine to very coarse sand, granules up to 3 mm, <2% fines, <2% gravel, grains angular, granitic composition, not calcareous, dry.
109–110	SW	Sand, well graded, brown (5YR 4/4), fine to very coarse sand, 5–10% pebble gravel, <3% fines, grains angular, composed of quartz, feldspar, and minor biotite, not calcareous, dry.
119–120	SW	Gravelly sand, dark yellowish brown (10YR 4/2), fine to coarse sand, well graded, angular grains, <3% fines, subrounded pebble gravel (≤2 cm), 20–25% by volume granitic composition, dry, not calcareous.
129–130	SW	Sand, well graded, pale brown (5YR 5/2), fine- to coarse-grained sand, <3% fines, 5–7% subangular pebble gravel (≤1 cm), grains angular, composed of quartz, feldspar, and biotite, not calcareous, dry.
139–140	SW	Sand with silt, pale yellowish brown (10YR 6/2), fine to medium sand, 7–10% silt, 1% pebble gravel, dry, not calcareous.
149–150	SW	Sand with silt, pale yellowish brown (10YR 6/2), fine to medium sand, well graded, 5–7% silt, <1% gravel, not calcareous, dry.
159–160	SW	Sand, well graded, pale yellowish brown (10YR 6/2), fine to coarse sand, <5% silt, <2% gravel, broken quartz monzonite fragments up to 1 cm, composed of quartz, feldspar, and biotite, dry, not calcareous.
169–170	SW	Sand, well graded, pale yellowish brown (10YR 6/2), fine to medium sand, <5% silt, 2–3% granules and small pebbles (≤0.5 cm), composed of quartz monzonite, subangular, dry, not calcareous.
179–180	SW	Sand, well graded, pale brown (5YR 5/2), fine to medium sand, <5% silt, 2–3% granules and broken pebbles (≤0.3 cm), composed of quartz monzonite and granite, dry, not calcareous.
189–190	SP	Sand, poorly graded, pale yellowish brown (10YR 6/2), fine to medium sand, <3% silt, <1% gravel, dry, not calcareous.
199–200	SP	Sand, poorly graded, pale yellowish brown (10YR 6/2), fine to medium sand, <3% silt, 1–2% broken pebbles of quartz monzonite composition, dry, not calcareous.

Geologist: R. Lawrence/J. Ayarbe
Driller: WDC Exploration.
Date completed: 4-12-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 10624.089
Easting: 19134.098
Elevation: 5985.939

PHELPS DODGE
TYRONE, INC.

Well 383-2005-01

Daniel B. Stephens & Associates, Inc.
9-28-05
JN ES05_0070

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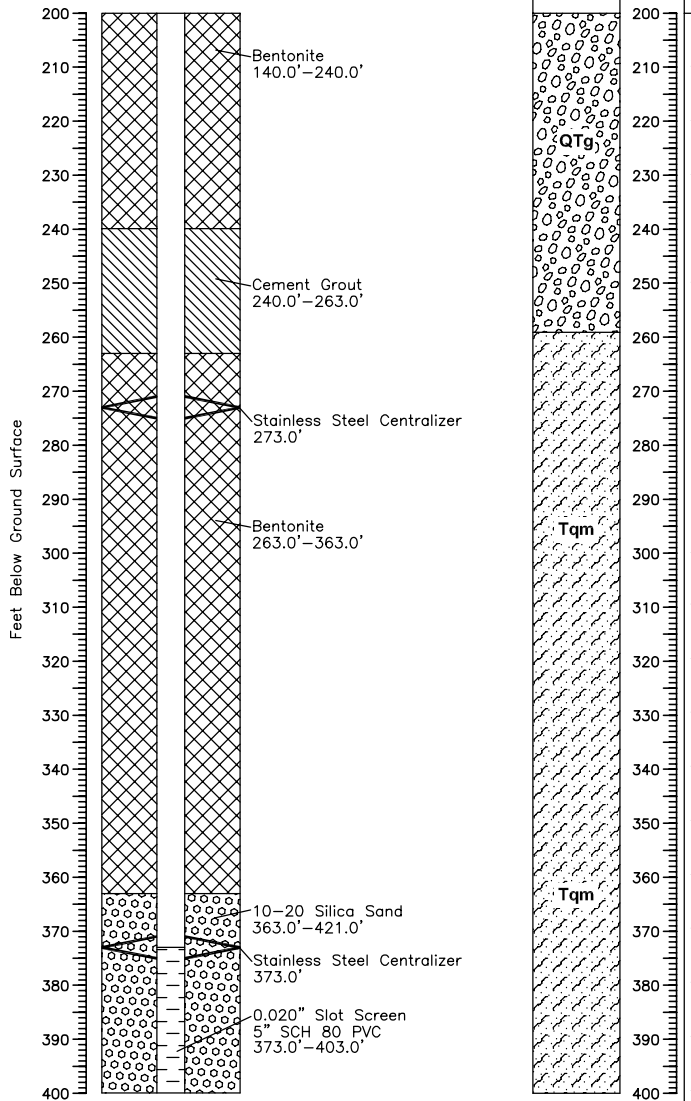

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209–210	SP	Sand with silt, poorly graded, pale yellowish brown (10YR 6/2), fine to medium sand, 5–7% silt, <1% gravel, dry, not calcareous.
219–220	SW	Sand with silt and gravel, pale yellowish brown (10YR 6/2), fine to coarse sand, ≤10% fines, 10–15% granules and broken pebbles (up to 0.5 cm), composed of quartz monzonite (biotite is chloritized), dry, not calcareous.
229–230	GW	Gravel with sand, mottled pink, light brown (5YR 5/6) to greenish, 80–85% angular to broken clasts, granite and quartz monzonite, abundant limonite (Fe–oxide), cuttings mostly broken.
239–240	GW	Gravel, pinkish pale red (10YR 6/2), 100% broken chips (≤1 cm), composed of granite and mineralized quartz monzonite, minor gray–pink quartzite.
249–250	SP	Sand, poorly graded, moderate brown (5 YR 4/4), medium– to very coarse–grained, angular to broken, composed of white and pink microcline, feldspar, quartz, black biotite, and hornblende, sand or finely ground igneous rock(?).
259–260	Tqm	Quartz monzonite, 15–20% coarse sand of granitic composition, 80–85% coarse chips (up to 1 cm), composed of white quartz, plagioclase, possibly rhyolite porphyry with strong red–orange Fe–oxide staining, biotite and hornblende, quartz monzonite with strong yellow Fe–oxide staining, appears to be mostly igneous bedrock.
269–270	Tqm	Quartz monzonite, various colors: white to dark yellow–orange (10YR 6/6), broken chips up to 0.6 cm, composed of white feldspar, quartz, and biotite with abundant orange–yellow Fe–oxide coating and veinlets.
279–280	Tqm	Quartz monzonite, various colors: white, greenish, and pink chips, angular (up to 0.5 cm), varying degrees of reddish to yellow Fe–oxide staining, composed of plagioclase, pinkish K–feldspar, and black mafic (biotite and hornblende).
289–290	Tqm	Quartz monzonite, various colors: white to yellow (10YR 6/6), cuttings broken and consist of one rock type (quartz monzonite), commonly stained with yellow limonite, rare fragments of earthy hematite, minor pink microcline (i.e., granite).
299–300	Tqm	Quartz monzonite, various colors: white, pink, and yellow–orange (10YR 6/6), cuttings stained with red or yellow Fe–oxide (limonite), fragments of earthy hematite.
309–310	Tqm	Quartz monzonite, various colors: white, pink to red, tan, and orange (10YR 5/8), abundant amount of quartz (~15–20%), feldspar, some sericite on quartz, chippings.
319–320	Tqm	Quartz monzonite, various colors: white and red (7.5R 4/6), Fe–oxidation orange (10YR 5/8), plagioclase, K–feldspars, and some sericite.
329–330	Tqm	Quartz monzonite, various colors: white and red (7.5R 4/6), Fe–oxidation orange (10YR 5/8), plagioclase, K–feldspars, and some sericite.
339–340	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe–oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K–feldspars, some sericite.
349–350	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe–oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K–feldspars, plagioclase, some sericite.
359–360	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe–oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K–feldspars, plagioclase, some sericite, finer cuttings.
369–370	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe–oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K–feldspars, plagioclase, some sericite, finer cuttings.
379–380	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe–oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K–feldspars, plagioclase, some sericite, finer cuttings, faster drill penetration from 385 to 408 feet.
389–390	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe–oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K–feldspars, plagioclase, some sericite, finer cuttings, faster drill penetration from 385 to 408 feet.
399–400	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe–oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K–feldspars, plagioclase, some sericite, finer cuttings, faster drill penetration from 385 to 408 feet.

Geologist: R. Lawrence/J. Ayarbe
Driller: WDC Exploration.
Date completed: 4–12–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 10624.089
Easting: 19134.098
Elevation: 5985.939

PHELPS DODGE
TYRONE, INC.

Well 383-2005-01

Daniel B. Stephens & Associates, Inc.
9–28–05
JN ES05_0070

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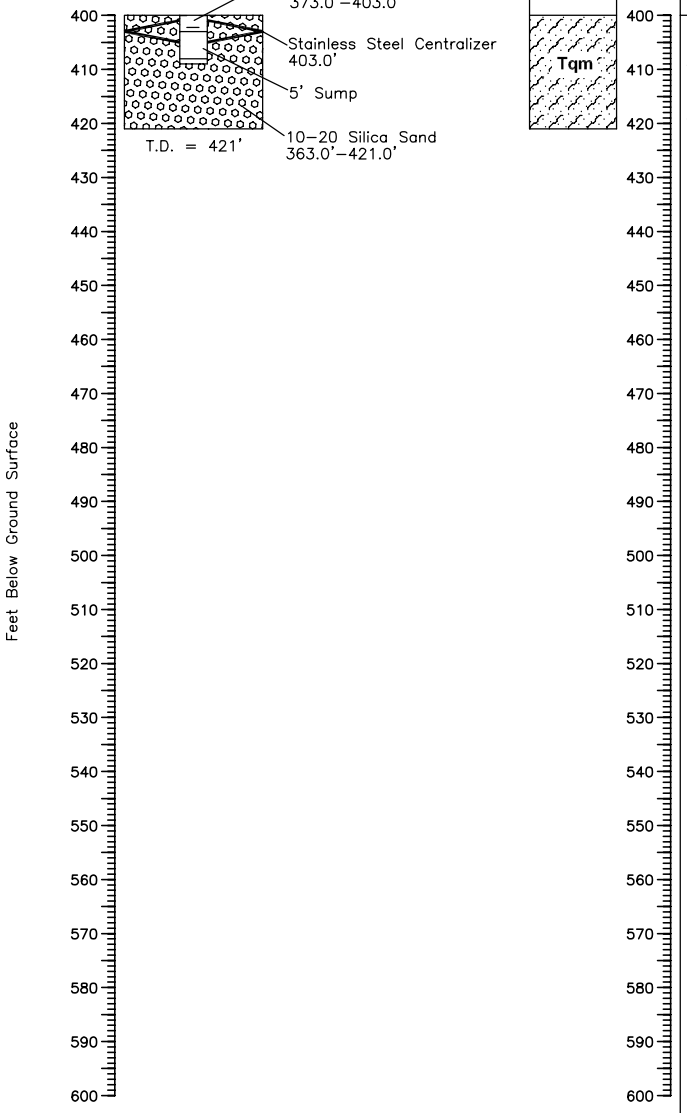

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
409-410	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe-oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K-feldspars, plagioclase, some sericite, intermittent hard to soft drilling starting at 408 feet, at 410 feet, cuttings becoming coarser.
419-420	Tqm	Quartz monzonite, various colors: white, pink to red (7.5R 4/6) and some black cuttings, Fe-oxidation orange (10YR 5/8), also black minerals (possibly biotite or hornblende), K-feldspars, plagioclase, some sericite, coarse chippings.

Geologist: R. Lawrence/J. Ayarbe
Driller: WDC Exploration.
Date completed: 4-12-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 10624.089
Easting: 19134.098
Elevation: 5985.939

PHELPS DODGE
TYRONE, INC.

Well 383-2005-01

Daniel B. Stephens & Associates, Inc.
9-28-05
JN ES05_0070

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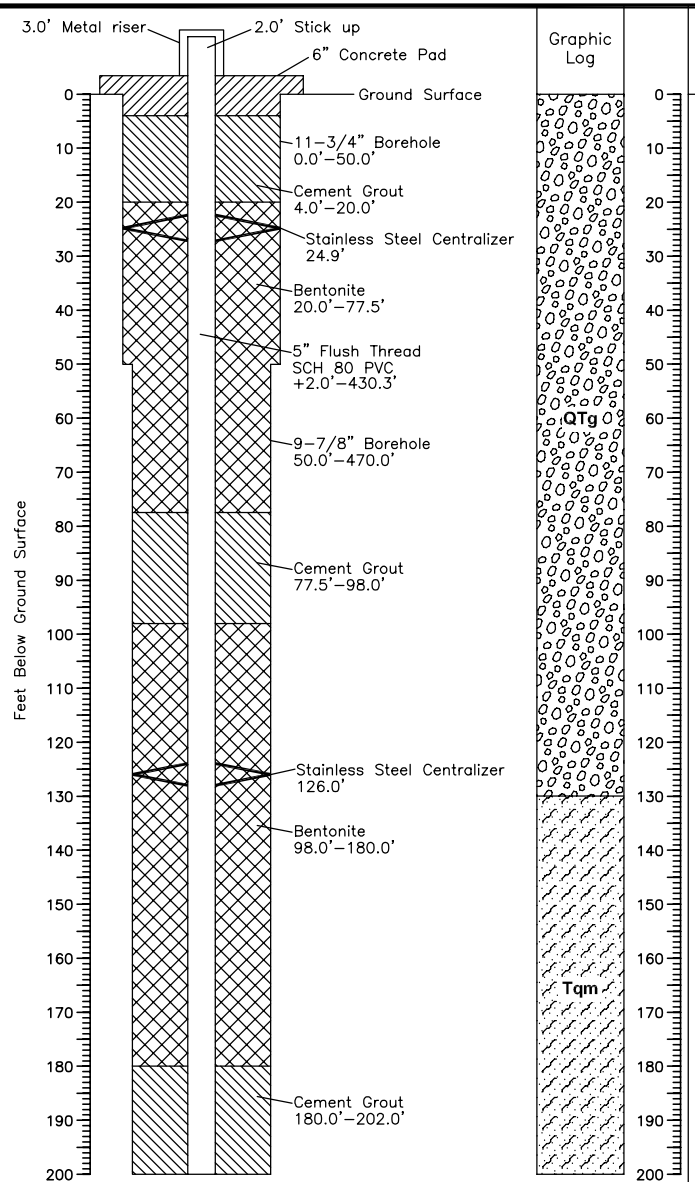

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
4–5	SW	Sand with gravel, silt and clay, yellowish red (5YR 4/6), poorly sorted, very moist (however, surface soil wetted by drillers), nonplastic, slightly cohesive, massive, sand is very coarse, subangular grains consist of quartz monsonite, feldspar, and quartz, 10% gravel up to 3.5 cm diameter, <10 % fines, not calcareous.
9–10	SM	Sand with gravel, silt and clay, yellowish red (5YR 4/6), poorly sorted, nonplastic, slightly cohesive, massive, sand is very coarse, subangular grains consist of quartz monsonite, feldspar, and quartz, 10% gravel up to 3.5 cm diameter, <10% fines, not calcareous, moist, Fe-oxidation visible on grains.
19–20	SW	Sand with gravel, silt and clay, yellowish red (5YR 4/6), poorly sorted, nonplastic, slightly cohesive, massive, sand is very coarse, subangular grains consist of quartz monsonite, feldspar, and quartz, 10% gravel up to 3.5 cm diameter, <10% fines, not calcareous, moist, Fe-oxidation visible on grains. with cuttings from a quartz monzonite boulder, at 15 feet hit large cobble/boulders.
29–30	SW	Coarse sand with gravel, reddish yellow (5 YR 6/6), poorly sorted, grains are subangular to subrounded, non-cohesive, grains consist of quartz, quartz monzonite/granite, Fe-oxide staining, ~15% gravel and up to 3.0 cm diameter, <15% fines, moist, not calcareous.
39–40	SW	Coarse sand with gravel, light reddish brown (5YR 6/4), poorly sorted, subangular to subrounded, non-cohesive, moist, grains consist of quartz monzonite/granite, quartz, ~20–30% gravel, <15% fines, not calcareous.
49–50	SW	Coarse- to medium-grained sand, light reddish brown (5YR 4/6), poorly sorted, subangular to subrounded, non-cohesive, moist, grains consist of quartz monzonite/granite, <15% gravel up to 2.0 cm diameter, <5% fines, slightly calcareous.
59–60	SW	Coarse- to medium-grained sand, light reddish brown (5YR 4/6), poorly sorted, subangular to subrounded, non-cohesive, moist, grains consist of quartz monzonite/granite, <15% gravel up to 3.5 cm diameter, <5% fines, dry, calcareous.
69–70	SW	Coarse- to medium-grained sand, light reddish brown (5YR 4/6), poorly sorted, subangular to subrounded, non-cohesive, moist, grains consist of quartz monzonite/granite, <15% gravel up to 2.0 cm diameter, <5% fines, dry, calcareous.
79–80	SW	Coarse- to medium-grained sand, light reddish brown (5YR 4/6), poorly sorted, subangular to subrounded, non-cohesive, dry, grains consist of quartz monzonite/granite, ~20% gravel up to 2.0 cm diameter, calcareous.
89–90	SW	Coarse- to fine-grained sand, light reddish brown (5YR 4/6), poorly sorted, subrounded, non-cohesive, moist to dry, grains consist of quartz monzonite/granite, <15% gravel up to 2.0 cm diameter, calcareous.
99–100	SW	Coarse- to fine-grained sand, light reddish brown (5YR 4/6), poorly sorted, subrounded, non-cohesive, moist to dry, grains consist of quartz monzonite/granite, ~20% gravel up to 2.0 cm diameter, calcareous.
109–110	SW	Coarse- to fine-grained sand, light reddish brown (5YR 4/6), poorly sorted, subrounded, non-cohesive, moist to dry, grains consist of quartz monzonite/granite, ~10% gravel up to 2.0 cm diameter, calcareous.
119–120	SW	Coarse- to fine-grained sand, light reddish brown (5YR 4/6), poorly sorted, subrounded, non-cohesive, moist to dry, grains consist of quartz monzonite/granite, <5% gravel up to 2.0 cm diameter, calcareous.
129–130	Tqm	Quartz monzonite, plagioclase, quartz, K-feldspars, and chlorite, <5% Fe-oxidation, various colors: mottled white/black, some red, black, and orange, pyrite present, cuttings up to 1.5 cm.
139–140	Tqm	Quartz monzonite, plagioclase, some quartz, K-feldspars, and chlorite, ~5% Fe-oxidation, various colors: mottled white/black, white, pink to red, and orange, cuttings up to 0.5 cm.
149–150	Tqm	Quartz monzonite, plagioclase, some quartz, K-feldspars, and chlorite, ~5% Fe-oxidation, various colors: mottled white/black, white, pink to red, and orange, cuttings up to 0.5 cm.
159–160	Tqm	Quartz monzonite, plagioclase, some quartz, K-feldspars, and chlorite, ~5% Fe-oxidation, various colors: mottled white/black, white, pink to red, and orange, cuttings up to 0.5 cm.
169–170	Tqm	Quartz monzonite, plagioclase, some quartz, K-feldspars, and chlorite, ~5% Fe-oxidation, various colors: mottled white/black, white, pink to red, and orange, cuttings up to 0.5 cm.
179–180	Tqm	Quartz monzonite, plagioclase, some quartz, K-feldspars, and chlorite, ~5% Fe-oxidation, various colors: mottled white/black, white, pink to red, and orange, cuttings up to 0.5 cm.
189–190	Tqm	Quartz monzonite, plagioclase, quartz, biotite, and some K-feldspars, <5% Fe-oxidation, various colors: mottled white/black, white, pink, and orange, cuttings up to 3.0 cm.
199–200	Tqm	Quartz monzonite, plagioclase, quartz, some K-feldspars, and chlorite, ~5% Fe-oxidation, various colors: mottled white/black, white, pink, and orange, cuttings up to 1.5 cm, generally <0.5 cm.

Geologists: J. Ayarbe/R. Lawrence
Driller: WDC Exploration
Date completed: 4-19-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 12879.858
Easting: 18331.017
Elevation: 6022.561

PHELPS DODGE
TYRONE, INC.

Well 383-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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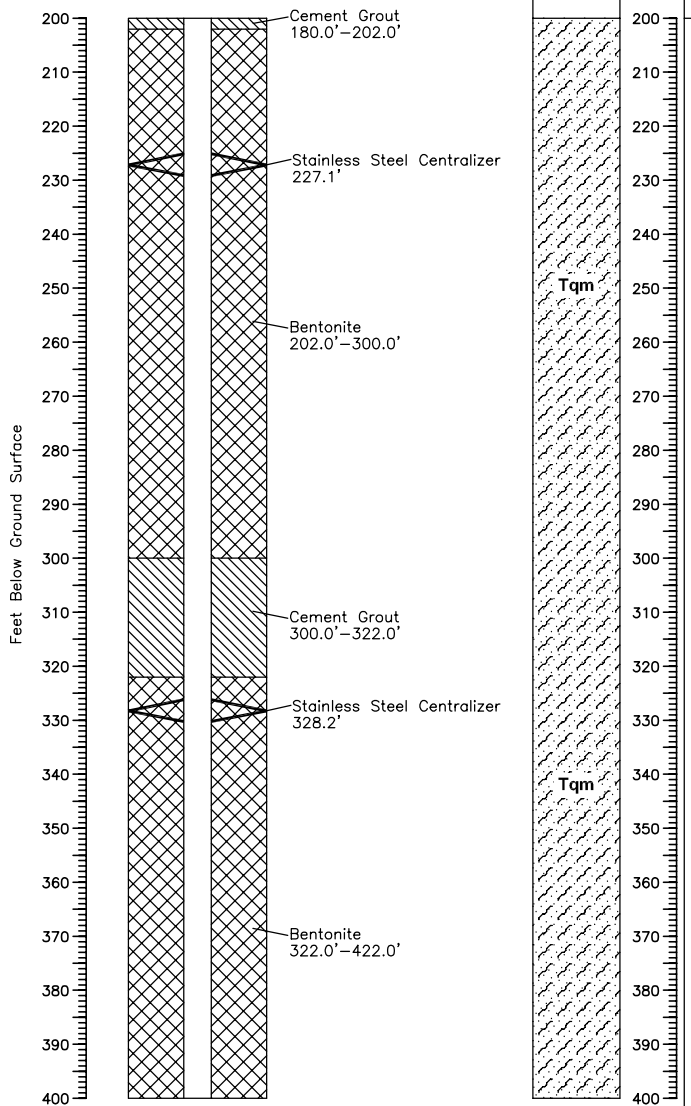

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209–210	Tqm	Quartz monzonite, plagioclase, quartz, some K–feldspars, biotite, and chlorite, ~5% Fe–oxidation, various colors: mottled white/black, white, pink, and orange, cuttings up to 2.0 cm, generally 0.5–1.0 cm.
219–220	Tqm	Quartz monzonite, plagioclase, quartz, some K–feldspars, biotite, and chlorite, ~5% Fe–oxidation, various colors: mottled white/black, white, pink, and orange, cuttings up to 3.0 cm, generally 0.5–1.5 cm.
229–230	Tqm	Quartz monzonite, plagioclase, quartz, some K–feldspars, biotite, and chlorite, ~5% Fe–oxidation, various colors: mottled white/black, white, pink, and orange, cuttings up to 2.0 cm, generally <0.5 cm.
239–240	Tqm	Quartz monzonite, plagioclase, quartz, some K–feldspars, biotite, and chlorite, ~5% Fe–oxidation, various colors: mottled white/black, white, pink, and orange, cuttings up to 3.0 cm, generally 0.5–1.5 cm.
249–250	Tqm	Quartz monzonite, plagioclase, quartz, some K–feldspars, biotite, and chlorite, ~5% Fe–oxidation, various colors: mottled white/black, white, pink, and orange, cuttings up to 3.0 cm, generally 0.5–1.5 cm.
259–260	Tqm	Biotite–quartz monzonite, white to light gray (10YR 6/2), generally K–feldspar, plagioclase, quartz, and biotite (2–3%), rock medium–grained, equigranular, holocrystalline, generally unmineralized, weak local pink to orange Fe–oxide staining, non–mineral to weakly mineralized.
269–270	Tqm	Biotite–quartz monzonite, white (10YR 8/1) to light gray (10YR 6/2), medium–grained, equigranular, K–feldspar, plagioclase, quartz, and biotite igneous rock, 20–30% of cuttings orange to reddish with weak to moderate Fe–oxidation, weakly mineralized.
279–280	Tqm	Biotite–quartz monzonite, medium gray (10YR 5/1) to white (10YR 8/1), dominantly quartz monzonite chips, 25–30% quartz, 70–75% K–feldspar and plagioclase, minor biotite, 10–15% dark greenish gray mafic rock, possibly diorite, medium grain plagioclase and pyroxene rocks, very weak mineralization, minor Fe–oxides.
289–290	Tqm	Biotite–quartz monzonite, various colors: medium gray (10YR 5/1) to white (10YR 8/1), locally brown, mainly medium–grained, equigranular, feldspar (K–feldspar and plagioclase), quartz (15–20%), biotite (2%), <5% greenish gray diorite, minor local Fe–oxide staining.
299–300	Tqm	Biotite–quartz monzonite, very light gray (10YR 7/1) to white holocrystalline, medium–grained, equigranular, K–feldspar, plagioclase, quartz (2%), biotite, weak sericite replacing feldspar, diorite, non–mineralized.
309–310	Tqm	Biotite–quartz monzonite, light gray (10YR 7/1) to white (10YR 8/1), medium–grained, K–feldspar, plagioclase, quartz, 1% biotite, feldspar locally strongly sericitized, local hematite and Mn–oxide veinlets and coatings, mineralization appears weak.
319–320	Tqm	Quartz monzonite, white (10YR 8/1) to very light gray (10YR 7/1), medium–grained K–feldspar, plagioclase, and quartz (>25%), feldspars appear altered (sericite) and biotite altered, 3–4% dark fine– to medium–grained diorite, very weak local yellow Fe–oxide staining.
329–330	Tqm	Quartz monzonite, various colors: white (10YR 8/1), light gray (10YR 7/1), and pale yellow, quartz monzonite, medium–grained K–feldspar, plagioclase, and quartz (>25%), feldspars appear altered (sericite) and biotite altered, 10–15% of chips coated with hematite, jarosite, and geothite (Fe–oxides) weak to locally moderately mineralized.
339–340	Tqm	Quartz monzonite, various colors: white (10YR 8/1), gray (10YR 7/1), and yellow, medium–grained K–feldspars, plagioclase, quartz, and biotite, 25–30% of chips display weak Mn–oxide, jarosite–limonite, 2–3% of chips appear volcanic (andesite, basalt, rhyodacite).
349–350	Tqm	Quartz monzonite, dominantly white chips (10YR 8/1), medium–grained, feldspars appear sericitized, otherwise weakly mineralized to non–mineralized.
359–360	Tqm	Quartz monzonite, white (10YR 8/1) to light brown (10YR 7/4), medium–grained, K–feldspars fresh to weakly altered (sericite), very weakly mineralized to non–mineralized.
369–370	Tqm	Quartz monzonite, white (10YR 8/1) to light brown (10YR 7/4), pale brown (10YR 7/4), and light gray (10YR 7/1), medium–grained quartz monzonite, K–feldspars commonly sericitized, <5% of chips appear mineralized, hematite, and jarosite.
379–380	Tqm	Dominantly quartz monzonite, very light gray (10YR 7/1), mixed lithologies: quartz monzonite, granite, granodiorite, quartz–K–feldspar intergrowths, rare greenish diorite, very weak mineralization, limonite, jarosite.
389–390	Tqm	Quartz monzonite, very light gray (10YR 7/1), medium–grained quartzofeldspathic ± biotite rock, very weak local limonite staining, minor very fine–grained greenish rock (possibly andesite).
399–400	Tqm	Dominantly quartz monzonite, white (10YR 8/1), 10–15% pink orange (10YR 6/8) microcline and K–feldspar–quartz (granite), rare andesite, diorite, very weak local limonite staining.

Geologists: J. Ayarbe/R. Lawrence
Driller: WDC Exploration
Date completed: 4–19–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 12879.858
Easting: 18331.017
Elevation: 6022.561

PHELPS DODGE
TYRONE, INC.

Well 383-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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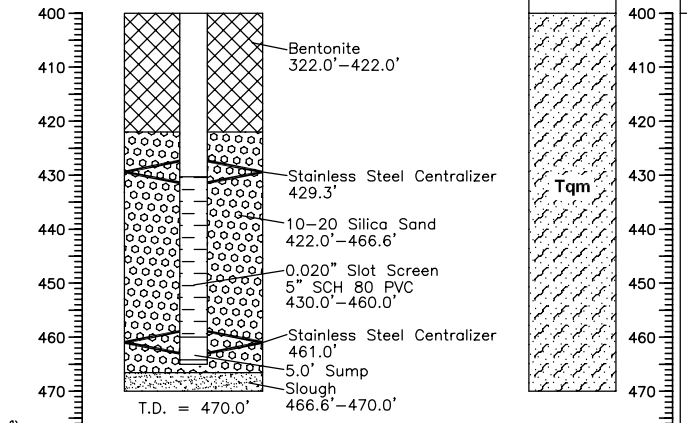

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
409–410	Tqm	Quartz monzonite, white (10YR 8/1) to very light gray (10YR 7/1), fine chips of quartz, plagioclase, pink K–feldspar or quartz monzonite, 10–15% of chip very weakly limonite stained.
419–420	Tqm	Quartz monzonite, white (10YR 8/1) and pale yellowish brown (10YR 6/8), dominantly fresh to weakly altered (sericitized) quartz monzonite, 10–15% of chips are weakly limonite stained.
429–430	Tqm	Quartz monzonite, white (10YR 8/1) to yellowish brown (10YR 6/8), quartz monzonite, feldspar strongly sericitized, 20–30% chips weakly limonite stained, minor dark green diorite.
439–440	Tqm	Quartz monzonite, white (10YR 8/1) to very light gray (10YR 7/2), fine chips composed of quartz, plagioclase, quartz monzonite, pink microcline, very weakly mineralized to non–mineralized.
449–450	Tqm	Quartz monzonite, white (10YR 8/1) to very light gray (10YR 7/2), typical quartzofeldspathic rock, medium–grained, local very weak limonite staining.
459–460	Tqm	Quartz monzonite, white (10YR 8/1) to very light gray (10YR 7/2), coarse chips of K–feldspar, plagioclase, quartz, and biotite (1%), medium–grained, 10% chips weakly limonite–stained, rare medium–grained diorite, quartz monzonite appears fresh.
469–470	Tqm	Quartz monzonite, white (10YR 8/1) to very light gray (10YR 7/2), coarse chips of K–feldspar, plagioclase, quartz, and biotite (1%), medium–grained, 10% chips weakly limonite–stained, rare medium–grained diorite, quartz monzonite appears fresh, very weak mineralized to non–mineralized.

Geologists: J. Ayarbe/R. Lawrence
Driller: WDC Exploration
Date completed: 4–19–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 12879.858
Easting: 18331.017
Elevation: 6022.561

PHELPS DODGE
TYRONE, INC.

Well 383-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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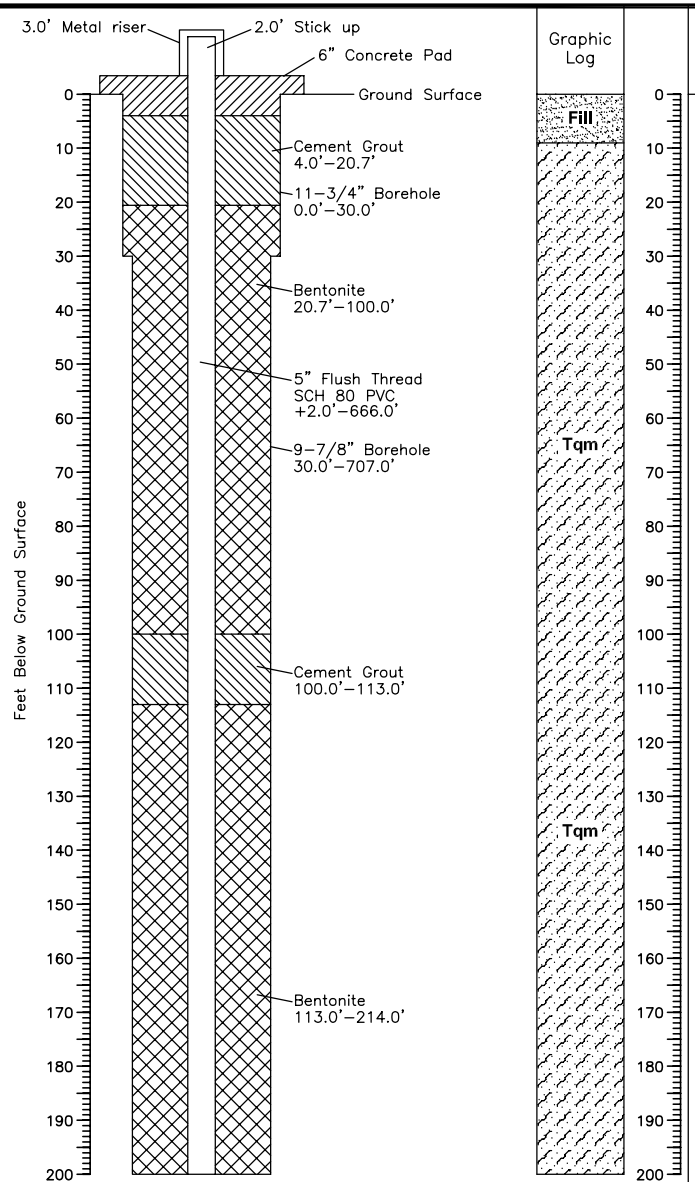

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
1–2	Fill	Sand with gravel, brown (7.5YR 5/4), fine gray sand to 3/8 inch diameter gravel (probably larger), poorly sorted, subangular clasts, moderately consolidated, damp. At 4 feet, encounter quartz monzonite boulder. At 6 feet, encounter dark gray clayey sand. At 8 feet, encounter gravel. At 9 feet, encounter quartz monzonite.
9–10	Tqm	Quartz monzonite, pinkish gray (7.5YR 7/2), 15% K-feldspar, 15% plagioclase, 70% quartz mostly from silicification, minor white clay and goethite, highly silicified, dry, strongly indurated.
19–20	Tqm	Quartz monzonite, pinkish white (5YR 8/2), 25% K-feldspar, 15% plagioclase, 60% quartz mostly from silicification, minor white clay, some K-feldspar alteration, highly silicified, dry, strongly indurated.
28–30	Tqm	Quartz monzonite, pinkish white (5YR 8/2), 25% K-feldspar, 15% plagioclase, 60% quartz mostly from silicification, minor white clay, some K-feldspar alteration, highly silicified, dry, strongly indurated.
40–44	Tqm	Quartz monzonite, white (7.5YR 8/1), 25% K-feldspar, 25% plagioclase, 50% quartz, relatively fresh, some silicification, dry, strongly indurated, minor white clay from saussurization of plagioclase.
45–50	Tqm	Quartz monzonite, white (7.5YR 8/1), 20% K-feldspar, 10% plagioclase, 70% quartz 50% from silicification, probably quartz veins, highly silicified, minor white clay, dry, strongly indurated.
52–60	Tqm	Quartz monzonite, white (7.5YR 8/1), 5% K-feldspar, 15% plagioclase, 80% quartz 48% from silicification, 2% goethite sericite from saussurization of plagioclase, highly silicified, minor white clay, dry, strongly indurated.
63–71	Tqm	Quartz monzonite, white (7.5YR 8/1), 5% K-feldspar, 15% plagioclase, 80% quartz 48% from silicification, 2% goethite sericite from saussurization of plagioclase, highly silicified, minor white clay, dry, strongly indurated, started injecting water at 63 feet.
75–80	Tqm	Quartz monzonite, light gray (7.5YR 7/1), 10% K-feldspar, 15% plagioclase, 72% quartz 55% from silicification, 3% goethite, minor sericite from saussurization, highly silicified, minor white clay, strongly indurated.
83–90	Tqm	Quartz monzonite, light gray (7.5YR 7/1), 10% K-feldspar, 15% plagioclase, 72% quartz 55% from silicification, 3% goethite, minor sericite from saussurization, highly silicified, minor white clay, strongly indurated.
90–100	Tqm	Quartz monzonite, light gray to light brown (7.5YR 6/3), 20% K-feldspar, 15% plagioclase, 60% quartz 40% from silicification, 5% goethite, trace potassic alteration, highly silicified, K-feldspar sericitized with sericite and white clay, strongly indurated. At 99 feet encounter more goethite, at 104 feet, less goethite.
106–110	Tqm	Quartz monzonite, pinkish gray (7.5YR 6/2), 30% K-feldspar, 25% plagioclase, 45% quartz, trace K-feldspar alteration, highly silicified with some sericite and white clay from sericitization, strongly indurated, at 112 feet lots of goethite to 114 feet.
115–120	Tqm	Quartz monzonite, light gray (10YR 7/1), 35% K-feldspar, 20% plagioclase, 43% quartz, 2% goethite, highly silicified, K-feldspar sericitized to sericite with minor white clay, strongly indurated.
125–130	Tqm	Quartz monzonite, light gray (7.5 YR 7/1), 30% K-feldspar, 25% plagioclase, 44% quartz, 1% goethite, highly silicified, K-feldspar sericitized with some sericite and minor white clay, strongly indurated.
133–140	Tqm	Quartz monzonite, light gray (7.5 YR 7/1), 30% K-feldspar, 25% plagioclase, 44% quartz, 1% goethite, highly silicified, K-feldspar sericitized with some sericite and minor white clay, strongly indurated.
140–150	Tqm	Quartz monzonite, light gray (7.5 YR 7/1), 30% K-feldspar, 25% plagioclase, 44% quartz, 1% goethite, highly silicified, K-feldspar sericitized with some sericite and minor white clay, strongly indurated, at 152 feet encounter goethite zone (5–10% goethite) with brown clay.
155–160	Tqm	Quartz monzonite, pinkish gray (7.5YR 6/2), 30% K-feldspar, 20% plagioclase, 44% quartz, 5% goethite, 1% K-feldspar alteration, silicified, sericitized, minor brown clay washed away, strongly indurated, at 164 feet a lot of potassic alteration and clay.
165–170	Tqm	Quartz monzonite, 20% K-feldspar, 15% plagioclase, 59% quartz, 5% goethite, 1% hematite and jarosite, highly silicified, some sericitization, minor brown clay washed away, strongly indurated.
170–180	Tqm	Quartz monzonite, light gray to light yellowish brown (10YR 6/4), 20% K-feldspar, 20% plagioclase, 40% quartz, 10% potassic alteration, 10% goethite and hematite, highly silicified, some sericite, minor yellow clay washed away, strongly indurated. At 172 feet potassic alteration and clay, at 178 feet yellow clay.
180–190	Tqm	Quartz monzonite, light gray to reddish yellow (7.5YR 6/6), 25% K-feldspar, 15% plagioclase, 50% quartz, 10% goethite, trace K-feldspar alteration, highly silicified, some sericite, minor brown clay washed away, strongly indurated.
190–200	Tqm	Quartz monzonite, light gray (7.5YR 7/1), 10% K-feldspar, 15% plagioclase, 73% quartz (55% from silicification), 2% goethite, trace potassic alteration, some sericite, highly silicified, strongly indurated, at 205 feet potassic and hematite altered zone. At 196–197 feet hematite zone with fractures.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 5-18-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 17375.250
Easting: 6491.350
Elevation: 5921.800

PHELPS DODGE
TYRONE, INC.

Well 435-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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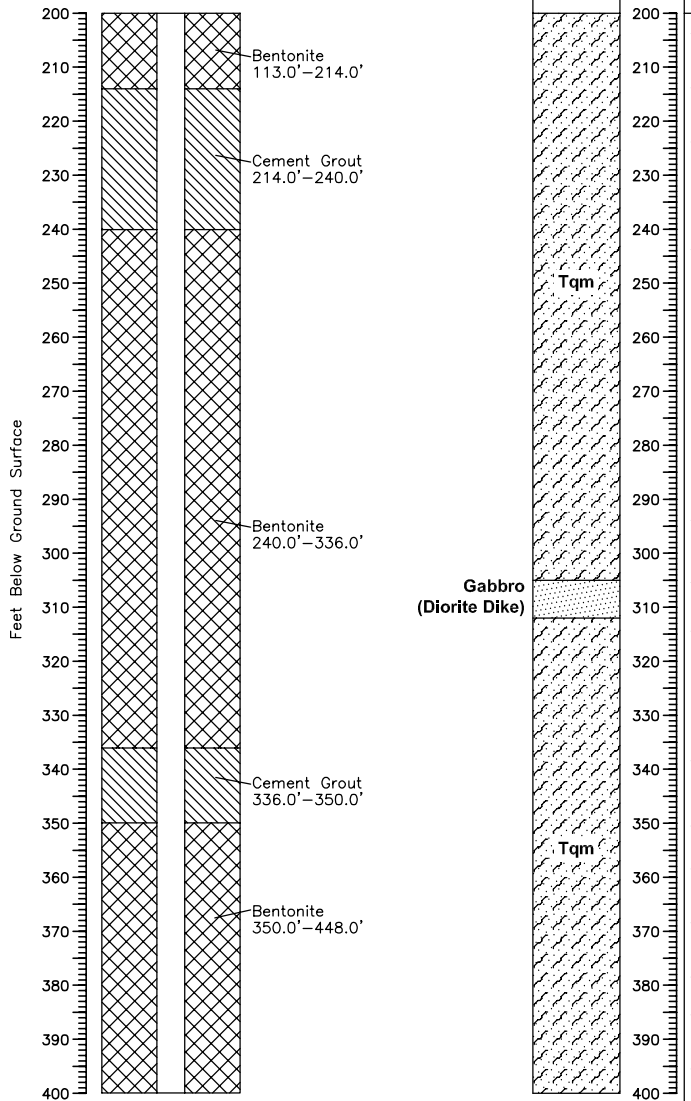

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
	203-210	Tqm	Quartz monzonite with potassic alteration and hematite, light gray to weak red (10R 5/4), 15% K-feldspar, 10% plagioclase, 55% quartz 50% from silicification, 8% hematite and goethite, 2% potassic alteration, strongly indurated.
	213-220	Tqm	Quartz monzonite with potassic alteration, light gray to weak red (10R 5/4), 30% K-feldspar (15% potassic alteration), 15% plagioclase, 53% quartz 40% from silicification, 2% hematite, trace goethite and biotite, highly silicified, strong indurated.
	223-230	Tqm	Quartz monzonite, gray (2.5Y 6/1), 20% K-feldspar, 15% plagioclase, 62% quartz (40% from silicification), 2% goethite and jarosite, 1% K-feldspar alteration, highly silicified, some sericite, strongly indurated.
	232-240	Tqm	Quartz monzonite, light gray (10YR 7/1), 30% K-feldspar, 35% plagioclase, 32% quartz 12% from silicification, 2% goethite, 1% potassic alteration, some sericite silicified, strongly indurated.
	243-250	Tqm	Quartz monzonite, pinkish gray (7.5YR 7/2), 30% K-feldspar, 40% plagioclase, some saussurization, 30% quartz 10% from silicification, some sericitization, 4% potassic alteration, 1% goethite, strongly indurated, at 258 feet encounter potassic alteration zone.
	253-260	Tqm	Quartz monzonite with potassic alteration and hematite, pinkish gray to dark reddish brown (2.5YR 3/3), 40% K-feldspar (25% from potassic alteration), 20% plagioclase, some saussurization, 40% quartz 25% from silicification, minor sericite, highly silicified, strongly indurated.
	263-270	Tqm	Quartz monzonite with potassic alteration, 45% K-feldspar (15% from potassic alteration), 20% plagioclase some saussurization, 35% quartz 15% from silicification, trace of goethite, some sericite, silicified, strongly indurated.
	273-280	Tqm	Quartz monzonite, pinkish gray (7.5YR 6/2), 40% K-feldspar (10% from potassic alteration), sericitized with 50% yellow clay and goethite, 30% plagioclase, 30% quartz 10% from silicification, 5% goethite and yellow clay, strongly indurated.
	285-290	Tqm	Quartz monzonite, light brownish gray (10YR 6/2), 5% K-feldspar, 10% plagioclase (saussurized), 85% quartz 60% from silicification, lot of vugs, highly silicified, trace potassic alteration, trace hematite, moderately indurated, at 291 feet potassic alteration with hematite and possibly red clay.
	293-300	Tqm	Quartz monzonite with hematite alteration, gray (5YR 6/1) to dark reddish brown (2.5YR 3/4), 15% K-feldspar (some from potassic alteration), 10% plagioclase, 45% quartz 25% from silicification, 30% hematite, probably a lot of red (ilcite) clay that washed away, moderately indurated.
	305-310	Tqm	Gabbro (diorite) dike, black (10YR 2/1) to dark yellowish brown (10YR 4/6), 40% pyroxene, 20% olivine, 40% plagioclase, goethite alteration of mafics, quartz veins, strongly indurated, at 308 feet encounter quartz veins, at 312 feet back into quartz monzonite.
	314-320	Tqm	Quartz monzonite with potassic alteration, gray (10R 6/1) to weak red (10R 5/4), 30% K-feldspar (10% from potassic alteration), 15% plagioclase, 52% quartz 30% from silicification, 3% goethite, some sericite, strongly indurated, brown clay washed away.
	328-331	Tqm	Quartz monzonite with potassic alteration, pale red (10R 6/2) to red (10R 5/6), 45% K-feldspar (25% from potassic alteration), 15% plagioclase, 40% quartz 25% from silicification, highly silicified, sericitized, poorly indurated from 324 feet down.
	338-340	Tqm	Quartz monzonite with potassic alteration, pale red (10R 6/2) to red (10R 5/6), 45% K-feldspar (25% from potassic alteration), 15% plagioclase, 40% quartz 25% from silicification, highly silicified, sericitized, 2% goethite.
	350-352	Tqm	Quartz monzonite, light gray (10YR 7/1) to very pale brown (10YR 7/4), 30% K-feldspar (5% from potassic alteration), 25% plagioclase, some saussurization, 35% quartz 15% from silicification, 10% goethite, trace jarosite, moderately indurated.
	358-360	Tqm	Quartz monzonite with potassic alteration, reddish gray (10R 6/1) to weak red (7.5R 5/4), 35% K-feldspar (20% from potassic alteration), 20% plagioclase, 45% quartz 25% from silicification, trace goethite, poorly indurated.
	368-370	Tqm	Quartz monzonite, gray to reddish gray (7.5R 5/1), 30% K-feldspar (15% from potassic alteration), 20% plagioclase, 45% quartz 25% from silicification, 2% hematite, poorly indurated, possibly fractured, large 3/4 inch chips.
	378-380	Tqm	Quartz monzonite, gray to reddish gray (7.5R 5/1) 25% K-feldspar (10% from potassic alteration), 35% plagioclase, 40% quartz 25% from silicification, minor sericite, strongly indurated.
	385-390	Tqm	Quartz monzonite, gray to reddish gray (7.5R 5/1) 25% K-feldspar (10% from potassic alteration), 35% plagioclase, 40% quartz 25% from silicification, minor sericite, strongly indurated.
	395-400	Tqm	Quartz monzonite, gray to reddish gray (7.5R 5/1), 25% K-feldspar (10% from potassic alteration), 35% plagioclase, 40% quartz 25% from silicification, minor sericite, strongly indurated.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 5-18-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 17375.25
Easting: 6491.35
Elevation: 5921.80

PHELPS DODGE
TYRONE, INC.

Well 435-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05 JN ES05_0070

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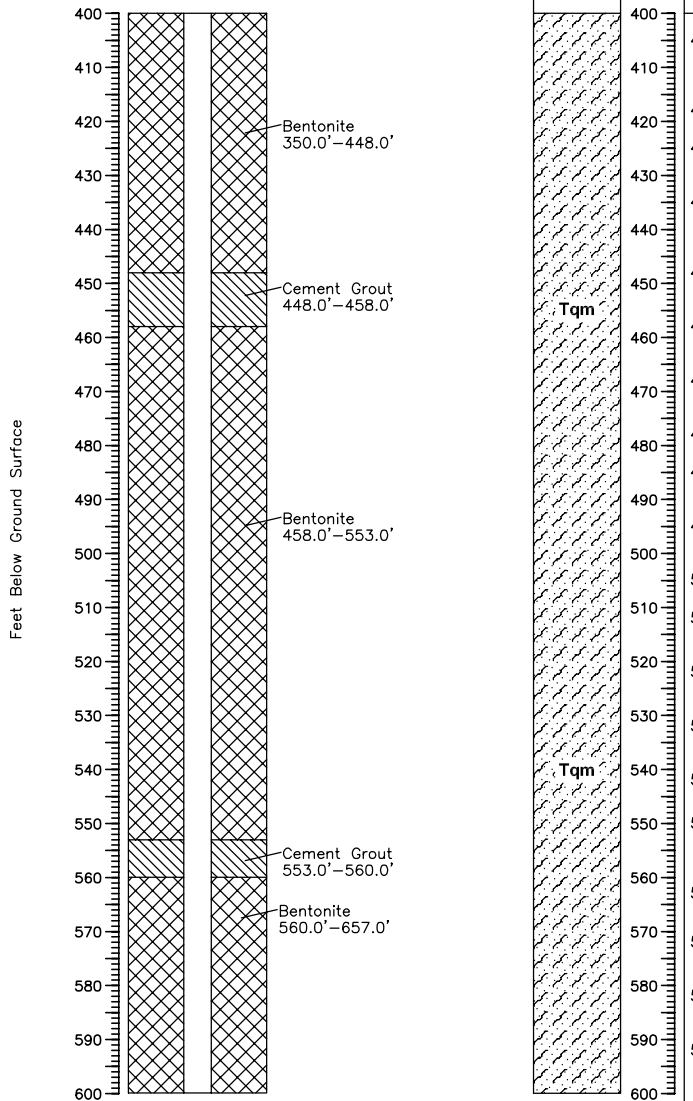

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
405–410	Tqm	Quartz monzonite, pinkish gray (5YR 6/2), 20% K–feldspar (10% from potassic alteration), 35% plagioclase, 40% quartz 20% from silicification, minor sericite, poorly indurated, a lot of red clay washed away. Soft at 408 feet.
418–422	Tqm	Quartz monzonite, pinkish gray (5YR 6/2), 20% K–feldspar (10% from potassic alteration), 35% plagioclase, 40% quartz 20% from silicification, minor sericite, poorly indurated, a lot of red clay washed away. Very few cuttings returned, possibly more K–feldspar rich.
425–430	Tqm	Quartz monzonite with proplytic alteration, black (10YR 2/1), 15% K–feldspar (5% from potassic alteration), 15% plagioclase, 20% quartz, 40% chlorite, 10% biotite(?), trace chrysocolla, a lot of brownish gray clay washed away, poorly indurated, at 429 feet encounter a lot of brownish gray clay and chlorite.
435–440	Tqm	Quartz monzonite with proplytic alteration, brown (10YR 4/3), 20% grayish brown clay, 15% K–feldspar (5% from potassic alteration), 15% plagioclase, 15% quartz, 30% chlorite, 5% biotite(?), dry, poorly indurated, stopped injecting fluids.
448–450	Tqm	Quartz monzonite with proplytic alteration, brown (10YR 4/3), 20% grayish brown clay, 15% K–feldspar (5% from potassic alteration), 15% plagioclase, 25% quartz 10% from silicification, 30% chlorite, 5% biotite, dry, poorly indurated.
458–460	Tqm	Quartz monzonite with proplytic alteration, dark grayish brown (10YR 4/2), 20% brown clay, 15% K–feldspar, 10% plagioclase, 10% quartz, 40% chlorite, 5% biotite, poorly indurated, dry, at 465 feet resistant drilling.
468–470	Tqm	Quartz monzonite with potassic alteration, light reddish brown (5YR 6/3), 15% reddish brown clay, 25% K–feldspar (10% from potassic alteration), 15% plagioclase, 25% quartz 10% from silicification, 20% chlorite, moderately indurated, dry.
478–480	Tqm	Quartz monzonite with proplytic alteration, light brownish gray (10YR 6/2), 20 % grayish brown clay, 15% K–feldspar, 10% plagioclase, 15% quartz, 40% chlorite, dry, moderately indurated, at 485 feet start injecting fluids again.
485–490	Tqm	Quartz monzonite, light gray (10YR 7/1) to black (10YR 2/1), 15% K–feldspar, 5% from potassic alteration, 20% plagioclase, 25% quartz, 50% chlorite, some silicification, strongly indurated, a lot of reddish brown clay that washed away.
495–500	Tqm	Quartz monzonite, light gray (10YR 7/1) to black (10YR 2/1), 35% K–feldspar (10% from potassic alteration), 20% plagioclase, 30% quartz, 15% chlorite (possibly from up hole), some sericitization, strongly indurated, a lot of reddish brown clay washed away.
505–510	Tqm	Quartz monzonite, light gray (10YR 7/1) to black (10YR 2/1), 35% K–feldspar (10% from potassic alteration), 20% plagioclase, 30% quartz, 15% chlorite (possibly from up hole), some sericitization, strongly indurated, a lot of reddish brown clay washed away.
512–520	Tqm	Quartz monzonite, light gray (10YR 7/1) to black (10YR 2/1), 35% K–feldspar (10% from potassic alteration), 20% plagioclase, 30% quartz, 10% chlorite (possibly from up hole), some sericitization, strongly indurated, a lot of reddish brown clay washed away.
522–530	Tqm	Quartz monzonite, light gray (10YR 7/1) to weak red (10R 4/4), 25% K–feldspar, 40% plagioclase, 25% quartz, 10% chlorite, trace jarosite and sericite, strongly indurated, a lot of red clay washed away.
532–540	Tqm	Quartz monzonite, light gray (10YR 7/1) to weak red (10R 4/4), 25% K–feldspar, 40% plagioclase, 25% quartz, 10% chlorite, trace jarosite and sericite, strongly indurated, a lot of red clay washed away.
542–550	Tqm	Quartz monzonite, light gray (10YR 7/1) to weak red (10R 4/4), 25% K–feldspar, 40% plagioclase, 25% quartz, 5% chlorite, trace jarosite, 2% sericite, strongly indurated, a lot of red clay washed away.
550–560	Tqm	Quartz monzonite, white to light gray (7.5YR 7/1), 40% K–feldspar (sericitized), 30% plagioclase, 30% quartz, trace chlorite, very strongly indurated, at 551 feet little or no red clay.
563–570	Tqm	Quartz monzonite, white to light gray (10YR 7/1), 35% K–feldspar (some sericitized), trace potassic alteration, 30% plagioclase, 35% quartz, trace chlorite, very strongly indurated, a lot of red clay washed away.
572–580	Tqm	Quartz monzonite, white to light gray (10YR 7/1), 35% K–feldspar (more sericite than above), trace potassic alteration, trace goethite and jarosite, 30% plagioclase, 35% quartz, 2–3% chlorite, very strongly indurated (very resistant drilling), a lot of red clay washed away.
582–590	Tqm	Quartz monzonite, light gray (7.5YR 7/1), 25% K–feldspar, trace potassic alteration, some sericite, 30% plagioclase, 50% quartz, 5% chlorite, trace goethite and hematite, some brown clay washed away, highly silicified, strongly indurated, at 599 feet little or no clay, at 586 feet little or no clay, at 588 feet brown clay.
592–600	Tqm	Quartz monzonite, gray (7.5YR 6/1), 20% K–feldspar, trace potassic alteration, some sericite, 25% plagioclase, 50% quartz, 5% chlorite (possibly from up hole), highly silicified, strongly indurated, little or no clay.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 5–18–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 17375.25
Easting: 6491.35
Elevation: 5921.80

PHELPS DODGE
TYRONE, INC.

Well 435-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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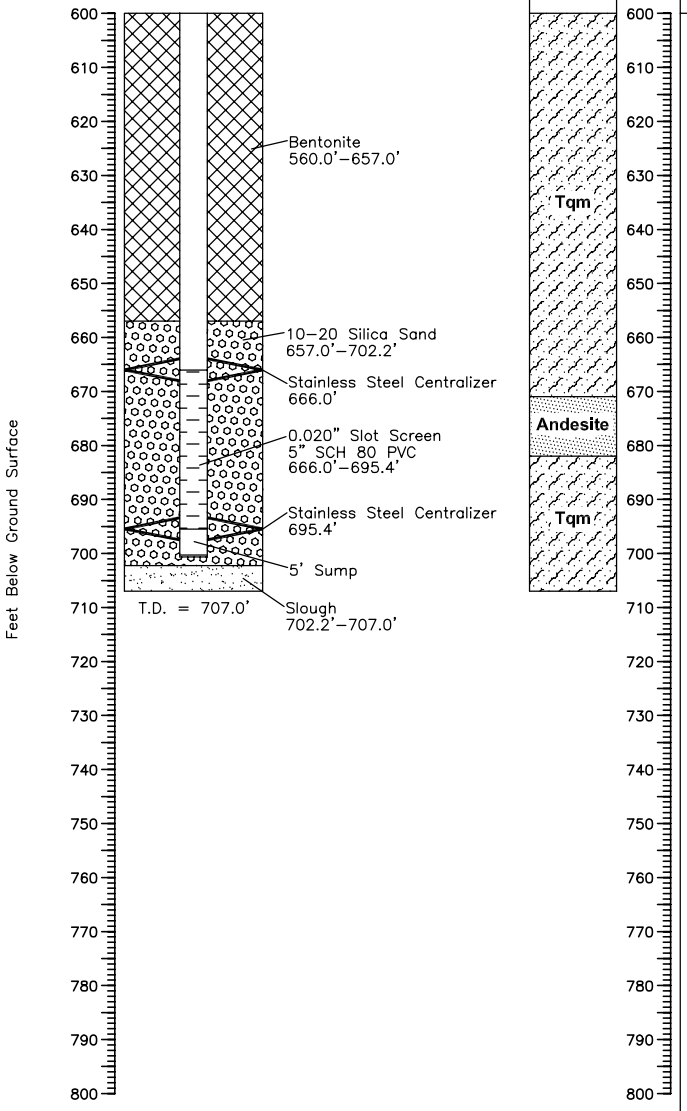

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
602-610	Tqm	Quartz monzonite, gray (7.5YR 6/1), 20% K-feldspar, trace potassic alteration, some sericite, 25% plagioclase, 50% quartz, 5% chlorite (possibly from up hole), highly silicified, strongly indurated, little or no clay, at 609 feet minor red clay, at 612 feet a lot of red clay.
614-620	Tqm	Quartz monzonite, gray (10YR 6/1), 35% K-feldspar, minor sericite, 30% plagioclase, 33% quartz, 2% chlorite, trace of black mineral (ferric iron) coating few chips, strongly indurated, at 616 feet no more red clay, drilling fluid gray.
622-630	Tqm	Quartz monzonite, gray (2.5Y 6/1), 35% K-feldspar, minor sericite, 35% plagioclase, 30% quartz, trace of black (ferric iron), strongly indurated.
634-640	Tqm	Quartz monzonite, gray (7.5YR 6/1), 25% K-feldspar, trace sericite, 30% plagioclase, 40% quartz (silicified), 5% hematite, trace goethite, strongly indurated, at 638 feet brown clay.
645-650	Tqm	Quartz monzonite, gray (7.5YR 6/1), 25% K-feldspar, trace sericite, 30% plagioclase, 40% quartz (silicified), 5% hematite, trace goethite, strongly indurated.
652-660	Tqm	Quartz monzonite, gray (7.5YR 6/1), 25% K-feldspar, trace sericite, 30% plagioclase, 40% quartz (silicified), 5% chlorite (probably from up hole), trace goethite, strongly indurated, using a lot of foam to lift cuttings.
662-670	Tqm	Quartz monzonite, gray (7.5YR 6/1), 35% K-feldspar, some sericite, 35% plagioclase, saussurized with sericite and possibly a trace of epidote, 20% quartz, 1% chlorite, trace ferric iron (hematite?), very strongly indurated, trace chrysocolla, at 664 feet drilling fluid greenish gray, at 666 feet possible water, at 671 feet encounter andesite, borehole making lots of water.
674-680	Tqm	Andesite (diorite), black (5Y 2.5/1), near aphenitic, 30% plagioclase, 70% pyroxene with possible biotite, poorly to moderately indurated, probably water bearing; at 682 feet encounter quartz monzonite again.
685-690	Tqm	Quartz monzonite, gray (2.5Y 6/1), 25% K-feldspar, some sericite, 30% plagioclase, 45% quartz (silicified), trace goethite, 20% andesite from up hole, very strongly indurated.
692-700	Tqm	Quartz monzonite, gray (7.5YR 6/1), 40% K-feldspar (some potassic alteration), 25% plagioclase, trace saussurization, 35% quartz, some silicification, 40% andesite (probably from up hole), strongly indurated.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 5-18-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 17375.25
Easting: 6491.35
Elevation: 5921.80

PHELPS DODGE
TYRONE, INC.

Well 435-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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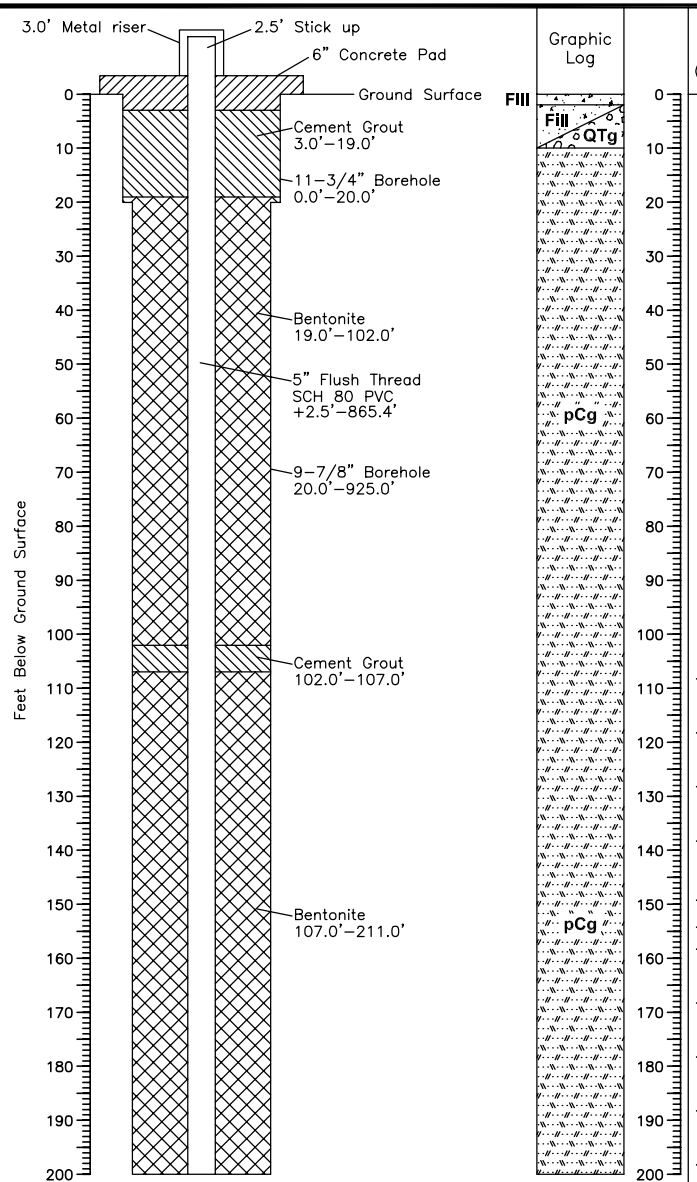

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
2	Fill	Fill: sand with small gravel (7.5YR 6/3), fine to coarse gravel, poorly sorted, 20% gravel, dry.
9–10	Fill/QTg	Sand with gravel, light brown (7.5YR 6/3), fine to coarse sand, poorly sorted, subangular, dry to damp, 15% small gravel of granitic composition, 10% rock fragments to 2.5 inch diameter, color pink/red/white, granite, 40–50% K–feldspar, 40–50% quartz., <5% plagioclase, trace biotite, minor sericitic alteration of feldspars, some feldspar, euhedral phenocrysts, dry, sample coarse–grained.
19–20	pCg	Granite, pale red (10R 6/4) and white, small fragments mostly quartz, subangular, rock chips: 40–50% K–feldspar, 40–50% quartz, trace biotite, <5% plagioclase, alteration to sericite, dry, coarse–grained.
29–30	pCg	Granite, light brown (7.5YR 6/4), 30% silt/clay, 70% 1 mm to 30 mm diameter rock fragments of coarse–grained granite, 50–60 % quartz, 30–40% white and pink feldspar (K–feldspar), minor plagioclase, trace biotite, Fe–oxide staining.
39–40	pCg	Granite, yellowish brown (10YR 5/4), 50% fine sand/silt/clay, 50% fragments are 2–5 mm diameter, 50–60% quartz, 40–50% feldspar, 2% biotite with Fe–oxide replacements, feldspars white/pink, chip surfaces Fe–oxide–stained indicating fractured rock.
49–50	pCg	Granite, yellowish brown (10YR 5/4), 50% fine sand/silt/clay, 50% fragments are 2–5 mm diameter, 50–60% quartz, 40–50% feldspar, 2–5% biotite with Fe–oxide replacements, feldspars white/pink, chip surfaces Fe–oxide–stained indicating fractured rock, Fe–oxiding staining more pronounced.
59–60	pCg	Granite, reddish brown (5YR 5/4), 50% fine sand/silt, 20% clay, fragments are 2–5 mm diameter, 50–60% quartz, 40–50% feldspar, 2–5% biotite with Fe–oxide replacements, feldspars white/pink, chip surfaces Fe–oxide–stained indicating fractured rock, Fe–oxiding staining more pronounced.
69–70	pCg	Granite, reddish brown (5YR 5/4), 50% fine sand/silt, 5% clay, fragments are 2–5 mm diameter, 50–60% quartz, 40–50% feldspar, 2–5% biotite with Fe–oxide replacements, feldspars white/pink, chip surfaces Fe–oxide–stained indicating fractured rock, Fe–oxiding staining more pronounced.
79–80	pCg	Granite, red (10R 5/8) to white, 5–10% clay, rock fragments 2–15 mm diameter, 40–60% quartz, 40–50% feldspar (mostly K–feldspar), trace biotite, <5% Fe–oxide.
89–90	pCg	Granite, light brown (7.5YR 6/4), 90% of sample fines (silt/clay fraction), 10% of sample 2–3 mm diameter quartz, feldspar, trace biotite, trace Fe–oxide, dry.
99–100	pCg	Granite, reddish gray (5YR 5/2), 10% (clay), 90% rock fragments of 2–15 mm diameter, quartz, feldspar, trace biotite, trace Fe–oxide, dry, coarse–grained, black deposits on fracture surfaces probably manganese.
109–110	pCg	Granite, reddish gray (5YR 5/2), 10% (clay), 90% rock fragments of 2–15 mm diameter, quartz, feldspar, trace biotite, trace Fe–oxide, dry, coarse–grained, black deposits on fracture surfaces probably manganese.
119–120	pCg	Granite, strong brown (7.5YR 5/6), 90% fines as silt/clay fraction, 10% rock fragments of granitic composition, <3mm diameter, Fe–oxide (limonite) staining abundant.
129–130	pCg	Granite, strong brown (7.5YR 4/6), 10% fines as clay/silt fraction, 90% rock fragments of 2–5 mm diameter, granitic composition, <3mm diameter, Fe–oxide (limonite) staining abundant.
139–140	pCg	Granite, strong brown (7.5YR 4/6), 40% fines as clay/silt fraction, 90% rock fragments of 2–5 mm diameter, granitic composition, <3mm diameter, Fe–oxide (limonite) staining abundant.
149–150	pCg	Granite, brown (7.5YR 5/3), 40% fines as clay/silt fraction, 90% rock fragments of 2–5 mm diameter, granitic composition, <3mm diameter, Fe–oxide (limonite) staining, perched water zone at 148 feet (approximately 3–5 feet thick), cuttings coming up as soupy mud.
155–156	pCg	
159–160	pCg	Granite, light brown (7.5YR 6/3), 80% of sample in clay/silt fraction, sample dry again, hard drilling. Granite, pinkish gray (7.5YR 6/2), rock chips <10 mm diameter, quartz, feldspar, biotite, subangular, dry to moist, feldspar mostly white, Fe–oxide abundant.
169–170	pCg	Granite, brown (7.5YR 5/2),10–20% silt/clay fraction, rock chips <10 mm diameter, quartz, feldspar, biotite, subangular, dry to moist, feldspar mostly white, Fe–oxide abundant.
179–180	pCg	Granite, brown (7.5YR 5/2),10–20% silt/clay fraction, rock chips <10 mm diameter, quartz, feldspar, biotite, subangular, dry to moist, feldspar mostly white, Fe–oxide abundant.
189–190	pCg	Granite, brown (7.5YR 5/2),10–20% silt/clay fraction, rock chips <10 mm diameter, quartz, feldspar, biotite, subangular, dry to moist, feldspar mostly white, Fe–oxide abundant.
199–200	pCg	Granite, brown (7.5YR 5/2),10–20% silt/clay fraction, rock chips <10 mm diameter, quartz, feldspar, biotite, subangular, dry to moist, feldspar mostly white, Fe–oxide abundant, drilling slow, start drilling with hammer bit.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5–23–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 14955.536
Easting: 3602.605
Elevation: 6237.318

PHELPS DODGE
TYRONE, INC.

Well 435-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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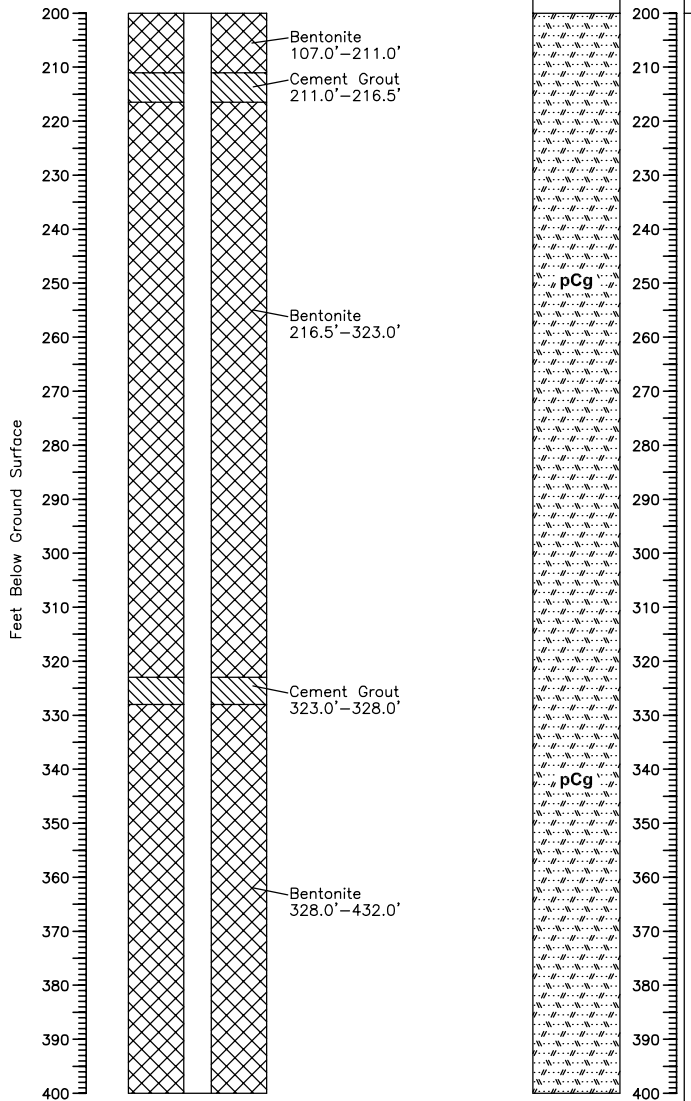

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
	205–206	pCg	Granite, very pale brown (10YR 7/3), sample 80–90% fines, dry.
	215–216	pCg	Granite, pink (7.5YR 7/3) to gray, quartz, feldspar (white and pink), biotite, trace Fe–oxide, dry.
	225–226	pCg	Granite, pink (7.5YR 7/3) to gray, quartz, feldspar (white and pink), biotite, trace Fe–oxide, dry.
	235–236	pCg	Granite, light brown (7.5YR 6/4), quartz, feldspar (white and pink), biotite, trace Fe–oxide, dry, mostly fines.
	245–246	pCg	Granite, light brown (7.5YR 6/3), quartz, feldspar (white and pink), biotite, trace Fe–oxide, dry, mostly fines.
	255–256	pCg	Granite, light brown (7.5YR 6/3), quartz, feldspar, biotite, trace Fe–oxide, dry, chips only 2–4 mm diameter.
	265–266	pCg	Granite, light brown (7.5YR 6/3), quartz, feldspar, biotite, trace Fe–oxide, dry, chips only 2–4 mm diameter.
	272–274	pCg	Soft, olive brown, penetrating darker rock, possibly dike.
	274–275	pCg	Granite, light brown (7.5YR 6/3), quartz, feldspar, biotite, trace Fe–oxide.
	284–285	pCg	Granite, pink (7.5YR 7/4), 80% fines, granitic composition, cuttings have small white clay balls, indicating argillitic alteration of feldspars, dry.
	294–296	pCg	Granite, light brown (7.5YR 6/3), 20–30% fines, rock chips to 10 mm diameter, dry, trace Fe–oxide, quartz, feldspar, biotite.
	304–305	pCg	Granite, light brown (7.5YR 6/4), 20–30% fines, rock chips to 10 mm diameter, dry, trace Fe–oxide, quartz, feldspar, biotite.
	314–315	pCg	Granite, pink (5YR 7/4), 20–30% fines, rock chips to 10 mm diameter, dry, trace Fe–oxide, quartz, feldspar, biotite.
	324–325	pCg	Granite, pink (5YR 7/4), trace Fe–oxide, quartz, feldspar, biotite, trace chrysocolla, cuttings rich in clay and very moist to wet.
	334–335	pCg	Granite, light brown (7.5YR 6/4), trace Fe–oxide, quartz, feldspar, biotite, cuttings rich in clay and very moist.
	344–345	pCg	Granite, light brown (7.5YR 6/3), 75% silt/clay fraction and very small rock chips.
	354–355	pCg	Granite, brown (7.5YR 5/3), 10% fines, slight increase in Fe–oxide, dry, very small rock chips.
	364–365	pCg	Granite, brown (7.5YR 5/3), 50% fines and very small rock chips.
	374–375	pCg	Granite, brown (7.5YR 5/3), 50% fines and very small rock chips.
	384–385	pCg	Granite, brown (7.5YR 5/3 to 5/4), grain size to 15 mm diameter, quartz, reddish and white feldspar, biotite (small), Fe–oxide orange to brown, feldspar shows alteration.
	394–395	pCg	Granite, brown (7.5YR 5/3 to 5/4), grain size to 15 mm diameter, quartz, reddish and white feldspar, biotite (small), Fe–oxide orange to brown, feldspar shows alteration.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5–23–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 14955.536
Easting: 3602.605
Elevation: 6237.318

PHELPS DODGE
TYRONE, INC.

Well 435-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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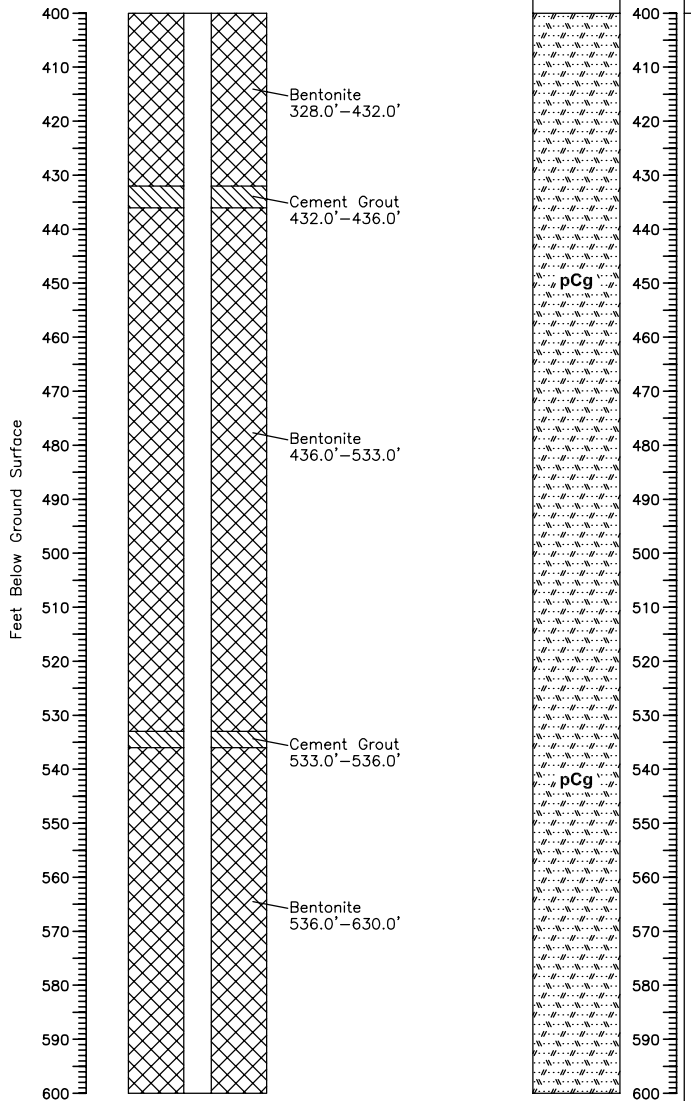

Graphic Log

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
404–405	pCg	Granite, brown (7.5YR 5/4), grain size to 15 mm diameter, quartz, reddish and white feldspar, biotite (small), Fe–oxide (slight increase) orange to brown, feldspar shows alteration, very small fragments, dry.
414–415	pCg	Granite, brown (7.5YR 5/3), quartz, feldspar, biotite, very small fragments, dry.
424–425	pCg	Granite, light brown (7.5YR 6/3), quartz, feldspar, biotite, fragments to 10 mm diameter, dry.
434–435	pCg	Granite, pink (7.5YR 7/3), quartz, biotite oxidized, feldspar argillized, clay (white), chrysocolla present.
444–445	pCg	Granite, pink (7.5YR 7/3), quartz, biotite oxidized, feldspar argillized, clay (white), chrysocolla present.
454–455	pCg	Granite, pink (7.5YR 7/3), quartz, biotite oxidized, feldspar argillized, clay (white), chrysocolla present.
464–465	pCg	Granite, brown (7.5YR 5/2) to light brown (7.5YR 6/4), quartz, reddish and white feldspar, trace chrysocolla, trace biotite (partially oxidized), Fe–oxide orange/brown, fragments mostly 2–6 mm diameter, rounded.
474–475	pCg	Granite, brown (7.5YR 5/2) to light brown (7.5YR 6/4), quartz, reddish and white feldspar, trace chrysocolla, trace biotite (partially oxidized), Fe–oxide orange/brown, fragments mostly 2–6 mm diameter, rounded.
484–485	pCg	Granite, brown (7.5YR 5/2) to light brown (7.5YR 6/4), quartz, reddish and white feldspar, trace chrysocolla, trace biotite (partially oxidized), increase in Fe–oxide staining indicates fractured rock, fragments to 25 mm diameter, rounded, at 485 feet driller starts injecting small amounts of water.
494–495	pCg	Granite, brown (7.5YR 5/2) to light brown (7.5YR 6/4), quartz, reddish and white feldspar, trace chrysocolla, trace biotite (partially oxidized), Fe–oxide staining, chips to 10 mm diameter on average, rounded.
504–505	pCg	Granite, strong brown (7.5YR 4/6) to brown (7.5YR 5/4), quartz, reddish and white feldspar, trace chrysocolla, trace biotite (partially oxidized), increase in Fe–oxide staining, chips mostly 2–4 mm diameter, rounded.
514–515	pCg	Granite, strong brown (7.5YR 4/6) to brown (7.5YR 5/4), quartz, reddish and white feldspar, trace chrysocolla, trace biotite (partially oxidized), Fe–oxide staining, chips mostly 2–4 mm diameter, rounded.
524–525	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), fragments 2–5 mm diameter, quartz, pink and white feldspar, biotite, Fe–oxide yellow/orange/brown.
534–535	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), fragments 2–5 mm diameter, quartz, pink and white feldspar, biotite, Fe–oxide yellow/orange/brown.
544–545	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), fragments 2–5 mm diameter, quartz, pink and white feldspar, biotite, Fe–oxide yellow/orange/brown.
554–555	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), fragments 2–5 mm diameter, quartz, pink and white feldspar, biotite, Fe–oxide yellow/orange/brown.
564–565	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), fragments 2–5 mm diameter, quartz, pink and white feldspar, biotite, Fe–oxide yellow/orange/brown.
574–575	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), fragments 2–5 mm diameter, quartz, pink and white feldspar, biotite, Fe–oxide yellow/orange/brown.
584–585	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), chips to 20 mm diameter, quartz, pink and white feldspar, biotite, Fe–oxide yellow/orange/brown.
594–595	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), chips to 2–6 mm diameter, quartz, pink and white feldspar, biotite, Fe–oxide yellow/orange/brown.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5–23–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 14955.536
Easting: 3602.605
Elevation: 6237.318

PHELPS DODGE
TYRONE, INC.

Well 435-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05 JN ES05_0070

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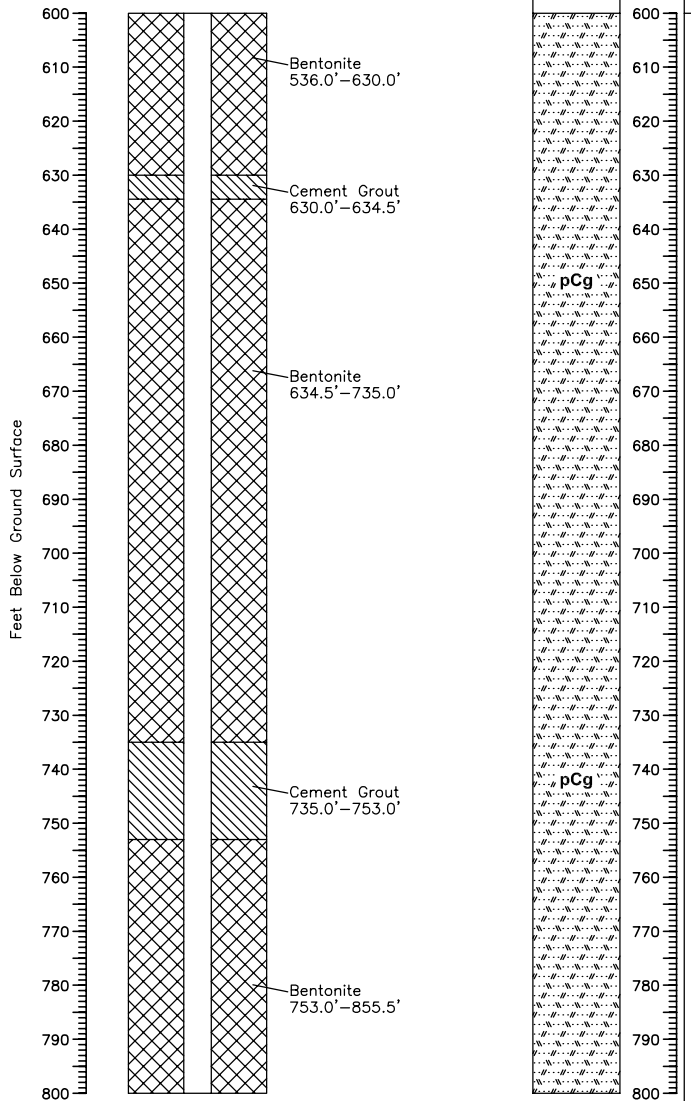

Graphic Log

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
604–605	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), chips to 2–6 mm diameter, quartz, pink and white feldspar, feldspars slightly argillized (white clay), biotite, Fe–oxide yellow/orange/brown.
614–615	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), chips to 2–6 mm diameter, quartz, pink and white feldspar, feldspars slightly argillized (white clay), biotite, Fe–oxide yellow/orange/brown.
624–625	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), chips to 2–6 mm diameter, quartz, pink and white feldspar, feldspars slightly argillized (white clay), biotite, Fe–oxide yellow/orange/brown, trace chrysocolla.
634–635	pCg	Granite, brown (7.5YR 5/4) to brown (7.5YR 5/2), chips to 2–6 mm diameter, quartz, pink and white feldspar, feldspars slightly argillized (white clay), biotite, Fe–oxide yellow/orange/brown, trace chrysocolla.
644–645	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide, rock fragments from 1–20 mm diameter, trace chrysocolla, subrounded, feldspar slightly argillized.
654–655	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide, rock fragments from 2–4 mm diameter, trace chrysocolla, subrounded, feldspar slightly argillized.
664–665	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide, rock fragments from 2–4 mm diameter, trace chrysocolla, subrounded, feldspar slightly argillized.
674–675	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide, rock fragments from 2–4 mm diameter, trace chrysocolla, subrounded, feldspar slightly argillized.
684–685	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide, rock fragments from 2–4 mm diameter, trace chrysocolla, subrounded, feldspar slightly argillized.
694–695	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide, rock fragments from 2–4 mm diameter, trace chrysocolla, subrounded, feldspar slightly argillized.
704–705	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide (slightly less than above), rock fragments from 2–4 mm diameter, trace chrysocolla, subrounded, feldspar slightly argillized.
714–715	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide, rock fragments from 2–4 mm diameter, trace chrysocolla, subrounded, feldspar slightly argillized.
724–725	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide (less abundant), rock fragments from 2–4 mm diameter, slightly more chrysocolla, subrounded, feldspar slightly argillized.
734–735	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide (less abundant), rock fragments from 2–4 mm diameter, slightly more chrysocolla, subrounded, feldspar slightly argillized.
744–745	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide (less abundant), rock fragments from 2–4 mm diameter, slightly more chrysocolla, subrounded, feldspar slightly argillized.
754–755	pCg	Granite, brown (7.5YR 5/2) to strong brown, quartz, K–feldspar, biotite, trace hornblende, orange/brown Fe–oxide (less abundant), rock fragments from 2–4 mm diameter, slightly more chrysocolla, subrounded, feldspar slightly argillized.
764–765	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments subrounded and 2–4 mm diameter, feldspar slightly argillized.
774–775	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments subrounded and 2–4 mm diameter, feldspar slightly argillized.
784–785	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments subrounded and 2–4 mm diameter, feldspar slightly argillized.
794–795	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments subrounded and 2–4 mm diameter, feldspar slightly argillized.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5–23–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 14955.536
Easting: 3602.605
Elevation: 6237.318

PHELPS DODGE
TYRONE, INC.

Well 435-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05 JN ES05_0070

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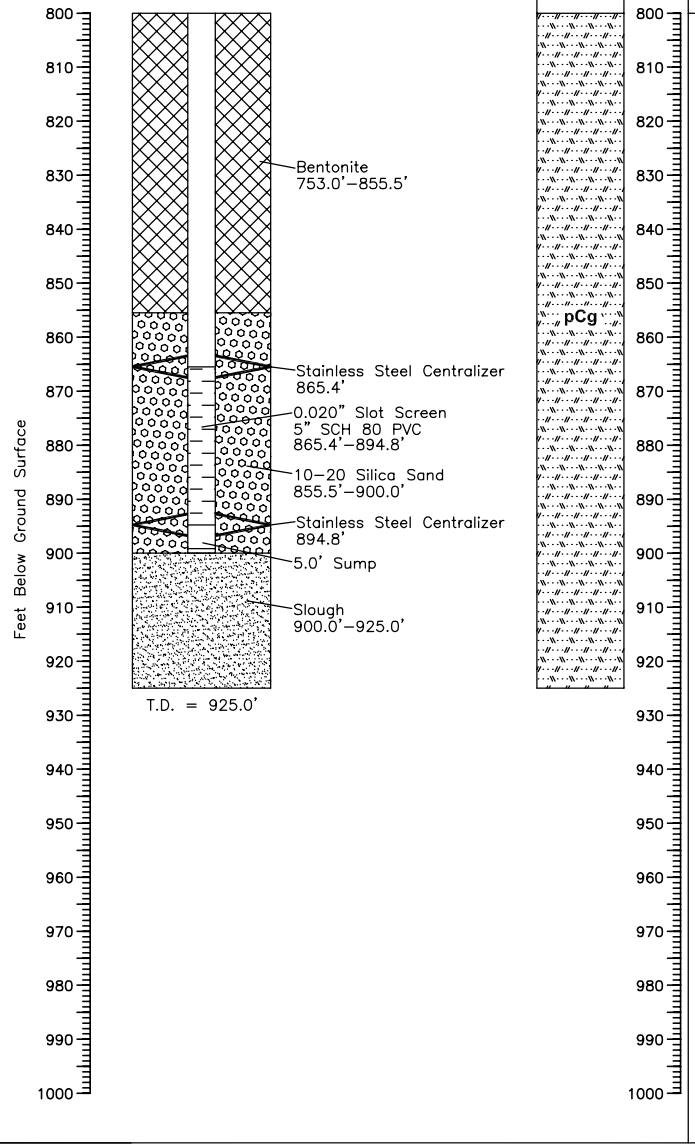

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
804–805	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments subrounded and 2–4 mm diameter, feldspar slightly argillized.
814–815	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments subrounded and 2–4 mm diameter, feldspar slightly argillized.
824–825	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments subrounded and 2–4 mm diameter, feldspar slightly argillized.
834–835	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments up to 10 mm diameter, subangular to subrounded, feldspar slightly argillized.
844–845	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments to 10 mm diameter, subangular to subrounded, feldspar slightly argillized.
854–855	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments 2–4 mm diameter, subangular to subrounded, feldspar slightly argillized.
864–865	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, K–feldspar, biotite is very small, trace hornblende, trace orange/brown Fe–oxide, trace chrysocolla, rock fragments 2–4 mm diameter, subangular to subrounded, feldspar slightly argillized.
874–875	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, feldspar (slightly argillized), biotite and hornblende, very little Fe–oxide, trace chrysocolla, fragments to 8 mm diameter.
884–885	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, feldspar (slightly argillized), biotite and hornblende, very little Fe–oxide, trace chrysocolla, fragments 2–4 mm diameter.
894–895	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, feldspar (slightly argillized), biotite and hornblende, very little Fe–oxide, trace chrysocolla, fragments 1–6 mm diameter.
904–905	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, feldspar (slightly argillized), biotite and hornblende, very little Fe–oxide, trace chrysocolla, fragments to 15 mm diameter.
919–920	pCg	Granite, brown (7.5YR 5/2) to strong brown (7.5YR 5/6), quartz, feldspar (slightly argillized), biotite and hornblende, very little Fe–oxide, trace chrysocolla, fragments to 15 mm diameter.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5–23–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 14955.536
Easting: 3602.605
Elevation: 6237.318

PHELPS DODGE
TYRONE, INC.

Well 435-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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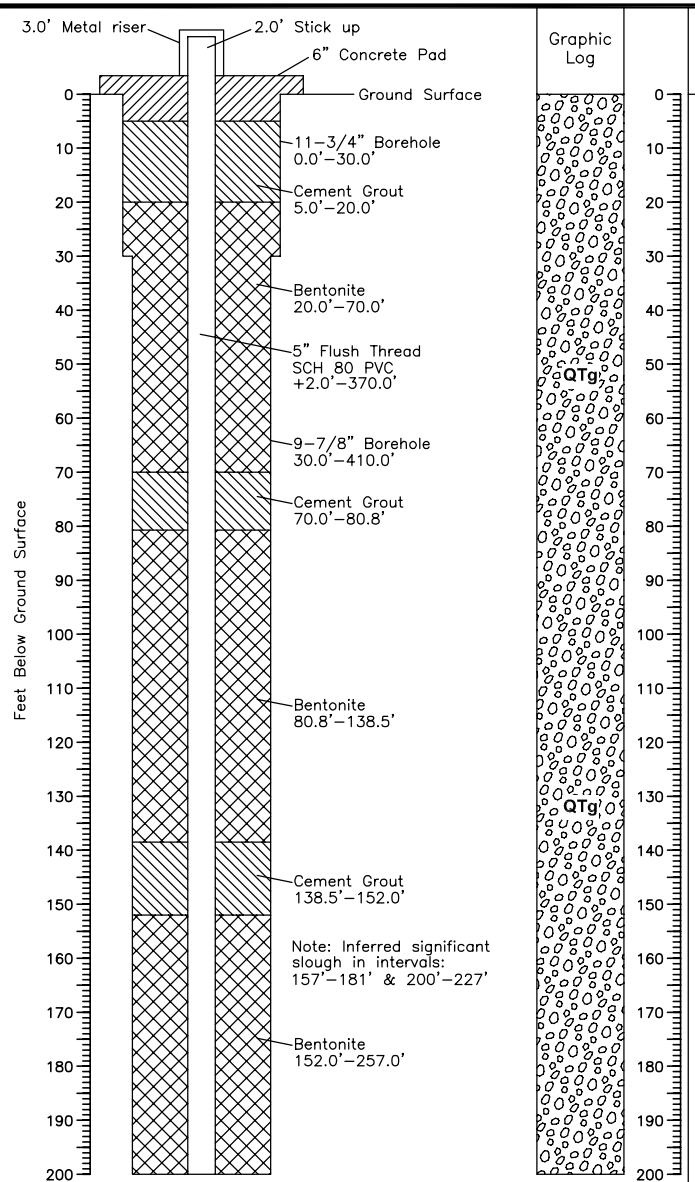

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
4–5	SW	Sand and gravel with silt, well graded, moderate brown (5YR 5/6), 10–20% fines, 7–10% pebble gravel, 80–85% fine to very coarse sand, clasts angular, primarily quartz monzonite in composition, hit large quartz monzonite boulder at 8 to 9.5 feet, dry.
9–10	SM	Silty sand, red–yellowish brown (5YR 5/6), very fine to medium sand, 15–20% fines (silt), <1% gravel, poorly graded, grains composed of white feldspar and quartz, dry.
19–20	SW	Sand with gravel and silt to gravelly sand with silt, reddish–yellow brown (5YR 6/6), fine to coarse sand, well graded, 10–15% fines, =15% gravel, abundant broken chips suggest gravel content is possibly higher, composition of grains quartzofeldspathic, dry.
29–30	SW	Gravelly sand with silt, reddish brown (5YR 5/4), very fine to coarse sand (45–60%), 10–15% fines, 30–40% gravel up to 1 mm (abundant broken fragments suggest coarse gravel present), composition of grains quartzofeldspathic, dry.
39–40	SW	Sand with silt, well graded, reddish brown (5YR 5/4), very fine to coarse sand (80–85%), well graded, 10–15% silt/clay, <5% gravel, composition of grains is quartz, feldspar, biotite, and quartz monzonite, dry.
49–50	GW	Gravel with sand, light brown (7.5YR 6/4), gravel fragments/chips (75–80%), broken chips up to 1 cm, <5% fines, 20–25% sand, composition of clasts is quartz monzonite, dry.
59–60	SW	Sand with gravel and silt, light reddish brown (5YR 6/4), very fine to medium sand (75–85%), 7–12% fines, 10–15% gravel (broken and angular chips), composition is feldspar, quartz, and quartz monzonite fragments, dry.
69–70	SP/SM	Sand with silt to silty sand, light reddish brown (2.5YR 6/4), fine to medium sand (80–90%), poorly sorted, 10–20% fines, <1% gravel, composed of quartz and feldspar, dry.
79–80	SW	Sand with silt, well graded, light reddish brown (2.5YR 6/4), very fine to coarse sand (85–90%), 10–15% silt, <2% gravel, composition is feldspar, quartz, and quartz monzonite fragments, dry.
89–90	SP	Sand with silt, light reddish brown (2.5YR 6/4), very fine to coarse sand, poorly graded, 12–15% fines, <1% gravel, quartzofeldspathic composition, dry.
99–100	SP	Sand with silt, light reddish brown (2.5YR 7/3), fine to medium sand (85–90%), 10–15% silt, 1–2% angular granules, composition is feldspar, quartz, and quartz monzonite fragments, dry.
109–110	SM	Silty sand, light reddish brown (2.5YR 7/3), fine to medium sand, 15–20% silt, 1% granules, quartzofeldspathic composition, dry.
119–120	GW	Gravel with sand, light reddish brown (2.5YR 6/4), broken chips (up to 0.5 cm) suggest >50% clasts of unknown size, 30–40% fine to medium sand, <5% fines, quartzofeldspathic composition, dry.
129–130	SM	Silty sand, very fine to medium sand (75–80%), 20–25% silt, <1% gravel, grains angular, quartz and feldspar composition, dry.
139–140	SW	Sand, well graded, white (10YR 8/1) to light brown (10YR 7/2), cuttings consist of very coarse sand to granule size (=0.7 cm) feldspar and quartz, angular; Note: switched to fluid–assisted Air Rotary; all samples wet, fines washed out. Textural characteristics of sample are masked (inferred), composition of chips is feldspar, quartz, and quartz monzonite.
149–150	SW	Sand, well graded, white (10YR 8/1) to pale brown (10YR 7/1), sand grains >95% angular to subangular, very fine to very coarse grained, granules (up to 0.7 cm), composition is feldspar, quartz, and quartz monzonite.
159–160	GW	Gravel with sand, pale brown (10YR 7/1), cuttings mainly coarse (up to 1.3 cm), angular to broken suggesting coarse gravel, 10–15% fine to medium sand, composition is quartz, feldspar, and quartz monzonite.
169–170	SW	Sand, well graded, pale brown (10YR 6/2), 99% finer size cuttings indicating very fine to coarse (up to 0.3 cm), grains angular, composed of feldspar, quartz, and quartz monzonite.
179–180	GW	Gravel, well graded, pale brown (10YR 7/1), coarse cuttings, angular, <5% sand (up to 1.2 cm), composition is monolithologic biotite quartz–monzonite. Driller hit harder material at 180 feet, then back into softer rock.
189–190	SW	Sand, well graded, pale brown (10YR 7/1), 90–95% finer size cuttings, very fine–grained to coarse sand, <10% fine gravel (up to 1.2 cm), composition is quartz monzonite, feldspar, and quartz (monolithologic).
199–200	GW	Gravel, well sorted, very pale brown (10YR 7/1), chips moderately coarse (up to 1.0 cm), angular and broken suggesting coarser clasts present, monolithologic composition is biotite–quartz–monzonite.

Geologist: J.R. Lawrence
Driller: WDC Exploration
Date completed: 5-4-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 18288.594
Easting: 4551.144
Elevation: 5834.666

PHELPS DODGE
TYRONE, INC.

Well 435-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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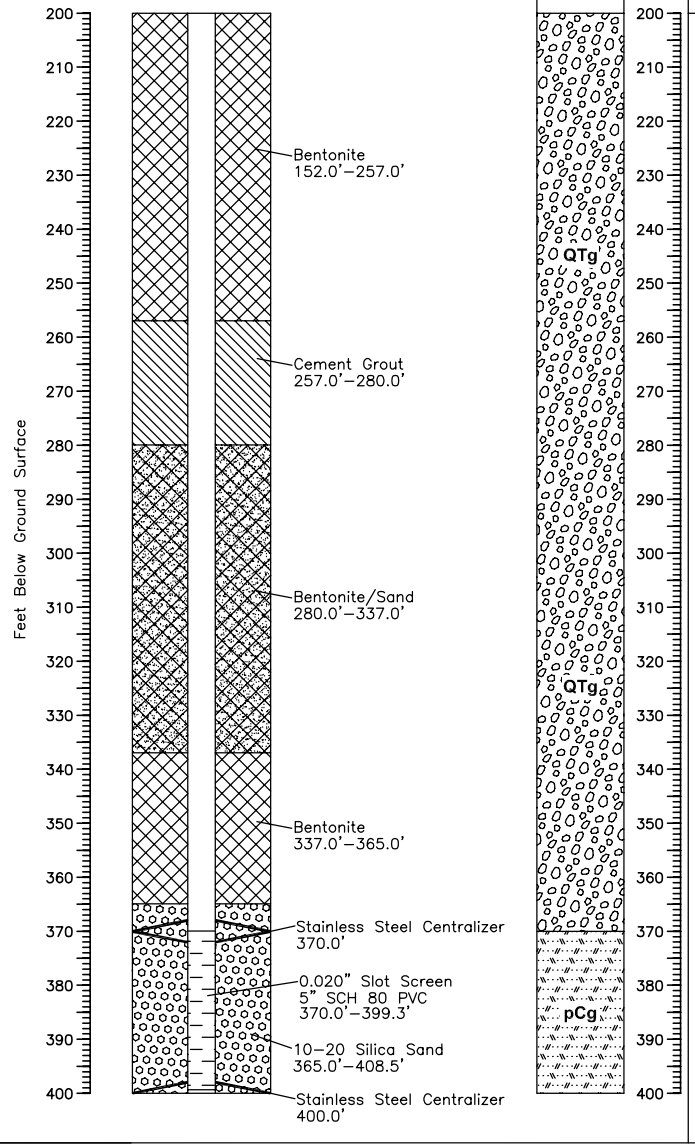

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209–210	SW	Sand with gravel, pale brown (10YR 7/1), chips medium size, =90% very fine to very coarse sand, well graded, 10–15% granules (up to 0.7 cm), composition is feldspar, quartz, and quartz monzonite.
219–220	SW	Sand, well graded, pale brown (10YR 7/1), chips medium size, 90–95% very fine to very coarse sand, angular, 5% granules (up to 0.6 cm), composition is quartz monzonite, feldspar, and quartz.
229–230	SW	Sand, well graded, pale brown (10YR 7/1), chips fine to medium size, 95–99% very fine to very coarse sand, angular, 1–2% coarse (up to 1.7 cm), dominantly feldspar, quartz, and quartz monzonite, minor white rhyolite porphyry.
239–240	SW	Sand with gravel and silt, pale brown (10YR 7/1), abundant fines preserved in cuttings, sand very fine to coarse (80–85%), 5–7 % fines, 10–15% broken gravel fragments (up to 1.5 cm), composition dominantly quartz monzonite, minor white aphanitic rhyolite.
249–250	GW	Gravel with sand, pale brown (10YR 7/1), medium to coarse cuttings, no fines, sand medium to very coarse (<50%), >50% broken chips (up to 1.5 cm) suggesting coarse gravel, composition dominantly quartz monzonite, minor white quartzite.
259–260	GW	Gravel, well graded, pale brown (10YR 7/1), coarse chips, 10% sand size, dominantly angular and broken chips (up to 2.0 cm) suggesting coarse gravel, composition dominantly medium-grained biotite quartz monzonite, 2–3% fine-grained quartzite.
269–270	SW	Sand with silt, pale brown (10YR 7/1), fine cuttings with silty fines preserved, very fine to coarse sand (90–95%), <10% silt, <1 % gravel, composition is feldspar, quartz, and quartz monzonite.
279–280	SW	Gravelly sand with silt, various colors: white (10YR 8/1) to pale brown (10YR 7/1), wide range of cutting sizes, fine to coarse sand, 10–15% silt/clay, 15–25% broken chips (up to 2.0 cm) indicating coarse gravel, composition dominantly medium-grained biotite quartz monzonite.
289–290	SW	Sand with silt and gravel, pale brown (10YR 7/1), wide size range of chips, sand very fine-grained to coarse-grained, fines 10–15% silt/clay, 10–15% coarse chips (up to 1 cm), composition is monolithic medium-grained biotite quartz monzonite.
299–300	SW	Sand, well graded, white (10YR 8/1) to pale brown (10YR 7/1), fine to very coarse sand, <1% fines, <5% gravel, composition dominantly feldspar, quartz, and quartz monzonite, locally limonitic or with Mn-oxides, trace pinkish quartzite.
309–310	SP	Sand, poorly graded, pale brown, sand-sized cuttings only (up to 1.0 cm), sand medium to very coarse, angular, composition is feldspar, quartz, and quartz monzonite.
319–320	SW	Sand, well graded, pale brown (10YR 7/3), mostly sand-sized cuttings, no fines, fine to very coarse sand (90–95%), angular, <10% broken chips (up to 1.8 cm) suggesting gravel.
329–330	SP	Sand, poorly graded, pale brown (10YR 7/3), fine to medium sand (95–99%), <1% fines, 1–3% granules, quartz, and feldspar grains.
339–340	SC	Clayey sand with gravel, light gray (10YR 7/2), fine to coarse sand, well graded (80–85%), 15–20% clay/silt, gravel fragments (up to 1.0 cm), composition is feldspar, quartz, and quartz monzonite.
349–350	SC	Clayey sand with gravel, pale brown (10YR 7/3), texturally similar to above with somewhat more apparent clay content, composition of clasts is feldspar, quartz, and quartz monzonite, local Mn-oxide.
359–360	SC	Clayey sand with gravel, very pale brown (10YR 7/3), fine to coarse sand (80–85%), 15–20% clay/silt, gravel fragments (up to 1.0 cm) broken suggesting some coarse clasts, composition is feldspar, quartz, and quartz monzonite(?), local hematite Fe-oxide.
369–370	pCg	Granite, pale brown (10YR 7/3), medium to very coarse sand (85–90%), <5% fines, 5–10% broken gravel fragments (up to 1.5 cm), composition is feldspar, quartz, quartz monzonite(?), minor quartz vein, chips consistently 0.4–0.7 cm, virtually no fines.
379–380	pCg	Granite, pale brown (10YR 7/3), angular, broken cuttings of consistent size (0.2–1.0 cm), no fines, composition is quartz, white feldspar, biotite, minor black Mn-oxide chips, and pink K-feldspar, difficult to tell grain size of this igneous rock, possibly more coarse-grained than noted.
389–390	pCg	Granite, white (10YR 8/1) to very pale brown (10YR 8/2), medium to coarse cuttings (0.2 to 0.5 cm, minor up to 1.0 cm), composition is quartz and white feldspar, up to 20% pink-orange K-feldspar indicating granite, appears medium-grained to coarse-grained.
399–400	pCg	Granite, white (10YR 8/1) to very pale brown (10YR 8/2), 90% medium-sized cuttings of quartz and feldspar, 10% chips (1.0–1.5 cm) composed of medium- to coarse-grained granite (i.e., quartz, K-feldspar, plagioclase, biotite) that is fresh to weakly sericitized, distinctive coarse pink K-feldspar present.

Geologist: J.R. Lawrence
Driller: WDC Exploration
Date completed: 5-4-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 18288.594
Easting: 4551.144
Elevation: 5834.666

PHELPS DODGE
TYRONE, INC.

Well 435-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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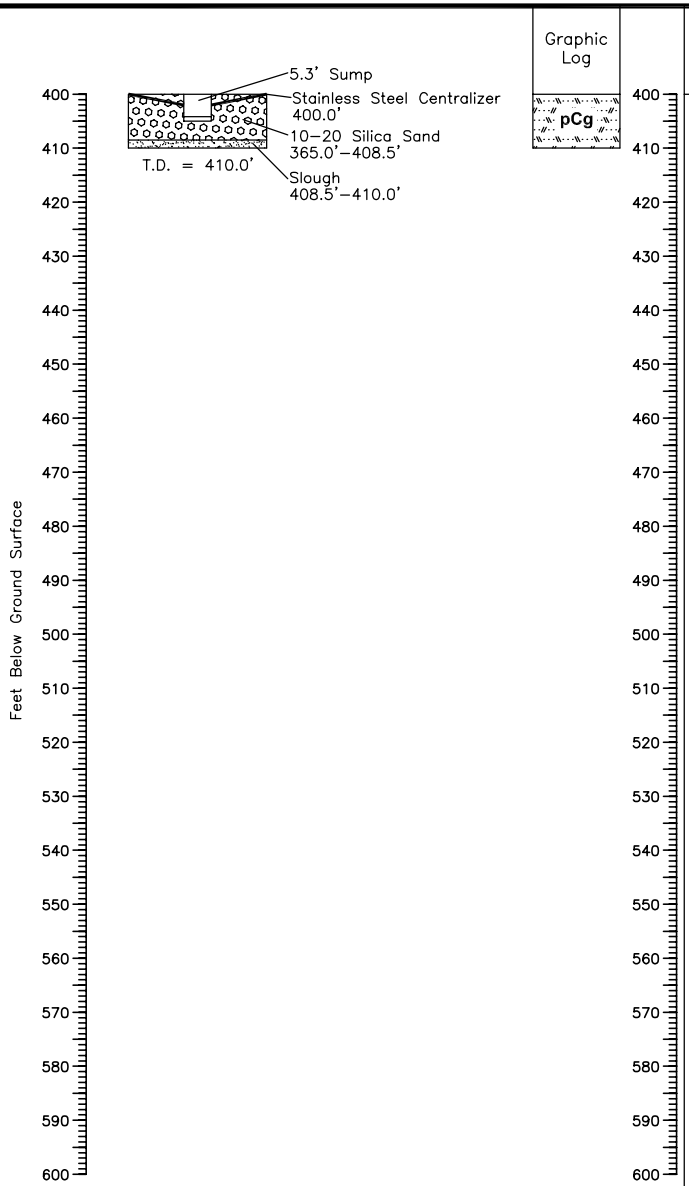

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
409-410	pCg	Granite, white (10YR 8/1) to very pale brown (10YR 8/2), chip sizes range from coarse sand to 2.0 cm, larger chips composed of medium-grained biotite-granite, abundant coarse clasts (up to 2 cm) of pink feldspar (K-feldspar megacrysts) indicative of Precambrian granite.

Geologist: J.R. Lawrence
Driller: WDC Exploration
Date completed: 5-4-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 18288.594
Easting: 4551.144
Elevation: 5834.666

PHELPS DODGE
TYRONE, INC.

Well 435-2005-03

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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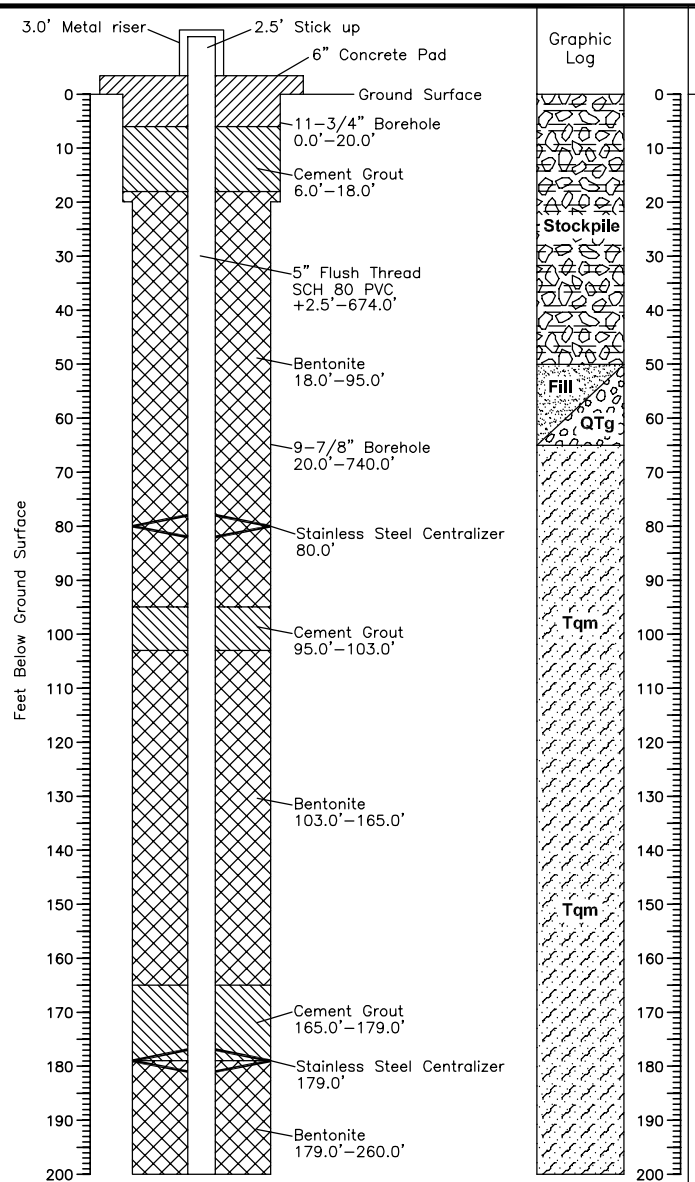

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–2	SW/GW	Sand (stock pile), light reddish brown (2.5YR 6/4), fine- to coarse-grained, poorly sorted, angular to subangular grains, quartz, feldspar, and rock fragment, goethite, hematite, and potassic alteration (K-feldspar), unconsolidated, dry.
10–11	SW/GW	Sand with gravel (stock pile), light reddish brown (2.5YR 6/4), fine-grained sand to 3/4 inch diameter gravel (probably larger), poorly sorted, angular to rounded clasts of feldspar, quartz, and rock fragments, moderately consolidated, moist, at 11 feet encounter boulder.
20–22	SW/GW	Sand with gravel (stock pile), light reddish brown (5YR 6/3), very fine-grained sand to 1 inch diameter gravel, minor clay, poorly sorted, angular to rounded grains of feldspar, quartz, and quartz monzonite, highly silicified, sericitized, damp.
30–31	SW/GW	Sand with gravel (stock pile), reddish brown (2.5YR 4/4), very fine-grained sand to 1 inch diameter gravel, minor clay, poorly sorted, angular to rounded grains of feldspar, quartz, and quartz monzonite, highly silicified, sericitized, damp.
40–42	SW/GW	Sand with gravel (stock pile), reddish brown (5YR 5/4), clay to 1 inch diameter gravel, mostly coarse-grained sand, poorly sorted, angular to rounded grains, feldspar, rock fragment, and minor quartz, rock fragment highly silicified, potassic alteration (K-feldspar), hematite and goethite, moist.
50–52	SW	Sand, light brown (7.5YR 6/4), fine- to coarse-grained, poorly sorted, subrounded grains, poorly to moderately consolidated, moist.
60–62	SW	Sand, light brown (7.5YR 6/4), fine- to coarse-grained, poorly sorted, subrounded grains, poorly to moderately consolidated, moist, minor amounts of gravel, at 65 feet encounter quartz monzonite, start injecting water.
70–71	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to weak red (10R 6/4), 30% K-feldspar, 20% plagioclase, 20% quartz, 25% potassic alteration, 5% goethite, trace chrysocolla, sericitized, white (illite clay).
80–81	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to weak red (10R 6/4), 30% K-feldspar, 20% plagioclase, 20% quartz, 25% potassic alteration, 5% goethite, 3% jarosite, trace chrysocolla, sericitized, white (illite clay).
90–91	Tqm	Quartz monzonite, white (10YR 8/1) to dusky red (7.5R 3/4), 30% K-feldspar, 10% plagioclase, 10% quartz, 40% potassic alteration (K-feldspar), 5% silica (silicified), 4% jarosite, 1% goethite, sericitized (illite) white clay.
100	–	No cuttings return, started injecting foam.
110	–	No cuttings return.
121–122	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to brownish yellow (10Y 6/6), 35% K-feldspar, 25% plagioclase, 25% quartz, 10% silica (silicified), 10% goethite, trace hornblende, biotite, magnetite and hematite, 3% potassic alteration (K-feldspar), sericitized.
130–135	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to brownish yellow (10Y 6/6), 35% K-feldspar, 25% plagioclase, 25% quartz, 10% silica (silicified), 10% goethite, trace hornblende, biotite, magnetite and hematite, less potassic alteration (K-feldspar) than above, sericitized.
140–142	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to brownish yellow (10Y 6/6), 35% K-feldspar, 25% plagioclase, 25% quartz, 10% silica (silicified), 10% goethite, trace hornblende, biotite, magnetite and hematite, 1% potassic alteration (K-feldspar), sericitized.
150–152	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to brownish yellow (10Y 6/6), 35% K-feldspar, 25% plagioclase, 25% quartz, 10% silica (silicified), 10% goethite, trace hornblende, biotite, magnetite and hematite, 1% potassic alteration (K-feldspar), sericitized.
160–162	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to brownish yellow (10Y 6/6), 35% K-feldspar, 25% plagioclase, 25% quartz, 10% silica (silicified), 10% goethite, trace hornblende, biotite, magnetite and hematite, 1% potassic alteration (K-feldspar), sericitized.
170–172	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to brownish yellow (10YR 6/6), 30% K-feldspar, 15% plagioclase, 20% quartz, 30% silica (highly silicified), 5% goethite, trace biotite, hornblende, potassic alteration (K-feldspar), sericitized.
180–182	Tqm	Quartz monzonite, light gray (2.5Y 7/1) to brownish yellow (10YR 6/6), 30% K-feldspar, 15% plagioclase, 20% quartz, 30% silica (highly silicified), 5% goethite, trace biotite, hornblende, potassic alteration (K-feldspar), sericitized, at 195 feet encounter ferricrete lot of hematite and potassic alteration minor (K-feldspar).
190–191	Tqm	Quartz monzonite, gray (10YR 6/1) to dusky red (10R 3/3) 20% K-feldspar, 10% plagioclase, 15% quartz, 20% silica (silicified), 30% potassic alteration (K-feldspar and hematite (?)), 5% goethite.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 4-17-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 9057.934
Easting: 17010.420
Elevation: 6205.016

PHELPS DODGE
TYRONE, INC.

Well 455-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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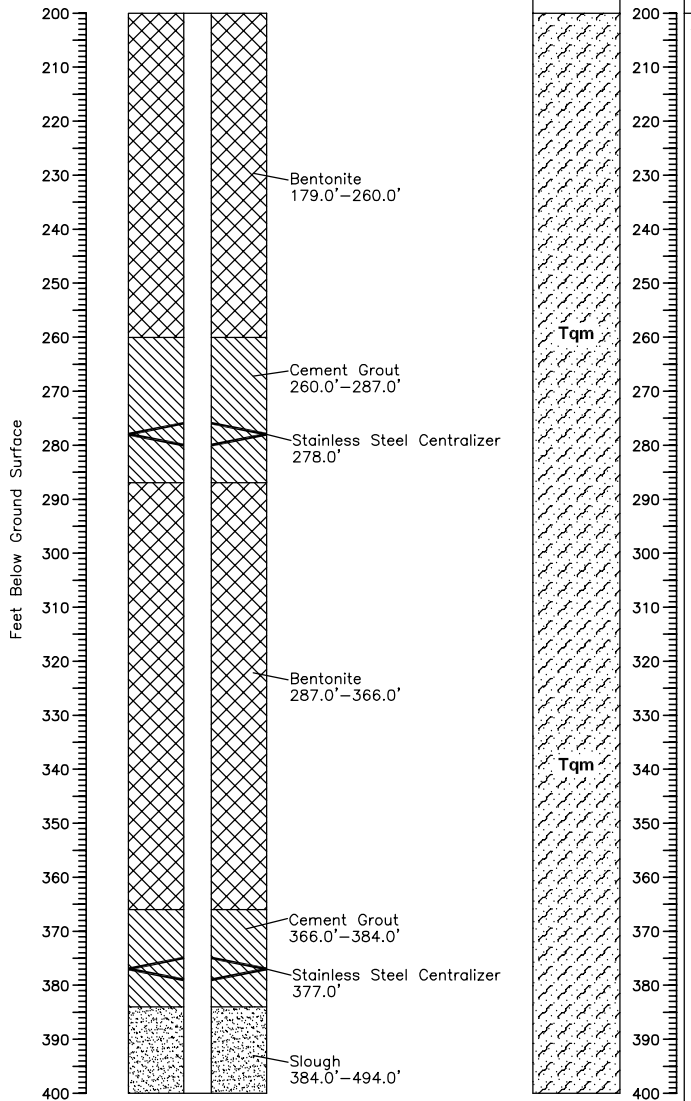

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
200–202	Tqm	Quartz monzonite, white (2.5Y 8/1) to dusky red (10R 3/2), 15% K–feldspar, 10% plagioclase, 10% quartz, 15% silica (silicified), 45% potassic alteration, K–feldspar and hematite, 5% goethite, minor white clay, sericitized.
210–212	Tqm	Quartz monzonite, white (2.5Y 8/1) to dusky red (10R 3/2), 15% K–feldspar, 10% plagioclase, 10% quartz, 15% silica (silicified), 45% potassic alteration, K–feldspar and hematite, 5% goethite, minor white clay, sericitized.
220–222	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brownish yellow (10YR 6/6), some reddish brown, 25% K–feldspar, 10% plagioclase, 20% quartz, 30% potassic alteration (K–feldspar), 10% silica (silicified), 10% goethite, at 225 feet encounter a lot of white clay.
231–233	Tqm	Quartz monzonite, white (2.5Y 8/1) to reddish brown (2.5YR 5/4), 30% K–feldspar, 15% plagioclase, 15% quartz, 25% potassic alteration (K–feldspar), 5% goethite, 10% white clay (washed away), sericitized.
241–242	Tqm	Quartz monzonite, white (2.5Y 8/1) to reddish brown (2.5YR 5/4), 30% K–feldspar, 15% plagioclase, 15% quartz, 25% potassic alteration (K–feldspar), 5% goethite, 10% white clay (washed away), sericitized, a lot of brown clay washed away.
251–255	Tqm	Quartz monzonite, gray (2.5Y 6/1) to reddish brown (2.5YR 5/4), 25% K–feldspar, 15% plagioclase, 10% quartz, 30% potassic alteration (K–feldspar), 5% hematite, 5% goethite, 10% brown clay washed away, sericitized.
260–264	Tqm	Quartz monzonite, light gray (10YR 7/1), to reddish brown (2.5YR 5/3), 25% K–feldspar, 15% plagioclase, 10% quartz, 40% potassic alteration (K–feldspar), 5% hematite, 5% goethite, sericitized.
–	–	No sample.
280–282	Tqm	Quartz monzonite, light gray (10YR 7/1) to reddish brown (2.5YR 5/3), 25% K–feldspar, 15% plagioclase, 10% quartz, 40% potassic alteration (K–feldspar), 5% hematite, 5% goethite, sericitized.
290–292	Tqm	Quartz monzonite, light gray (10YR 7/1) to reddish brown (2.5YR 5/3), 25% K–feldspar, 15% plagioclase, 10% quartz, 40% potassic alteration (K–feldspar), 5% hematite, 5% goethite, sericitized.
300–302	Tqm	Quartz monzonite, light gray (10YR 7/1) to reddish brown (2.5YR 5/3), 25% K–feldspar, 15% plagioclase, 15% quartz, 40% potassic alteration (K–feldspar), 5% hematite, 5% goethite, sericitized.
310–311	Tqm	Quartz monzonite, light gray (10YR 7/1)to weak red (10R 4/4), 30% K–feldspar, 15% plagioclase, 20% quartz, 30% potassic alteration (K–feldspar), 5% hematite, 5% goethite, 5% silica (silicified), sericitized.
320–321	Tqm	Quartz monzonite, light gray (10YR 7/1) to weak red (10R 4/4), 30% K–feldspar, 15% plagioclase, 20% quartz, <30% potassic alteration (K–feldspar), 5% hematite, 5% goethite, possibly as much as 15–20% silica (silicified), sericitized, chips small, strongly indurated.
330–331	Tqm	Quartz monzonite, dark gray (5YR 4/1) to weak red (2.5YR 5/2), 30% K–feldspar, 15% plagioclase, 20% quartz, 15% silicia (silicified), 20% K–feldspar alteration, trace hematite, biotite, jarosite, strongly indurated.
341–342	Tqm	Quartz monzonite, dark gray (5YR 4/1) to weak red (2.5YR 5/2), 30% K–feldspar, 15% plagioclase, 20% quartz, 15% silicia (silicified), 20% K–feldspar alteration, trace hematite, biotite, jarosite, strongly indurated.
350–351	Tqm	Quartz monzonite, dark gray (5YR 4/1) to weak red (2.5YR 5/2), 30% K–feldspar, 15% plagioclase, 20% quartz, 15% silicia (silicified), 20% K–feldspar alteration, trace hematite, biotite, jarosite, strongly indurated.
360–362	Tqm	Quartz monzonite, dark gray (5YR 4/1) to weak red (2.5YR 5/2), 30% K–feldspar, 15% plagioclase, 20% quartz, 15% silicia (silicified), 20% K–feldspar alteration, trace hematite, biotite, jarosite, strongly indurated.
370–371	Tqm	Quartz monzonite, dark greenish gray (GLEY 4/1) to weak red (10R 4/3), 30% K–feldspar, 15% plagioclase, 60% quartz, 5% silica (silicified), 10% chlorite, 25% potassic alteration (K–feldspar), 5% jarosite and goethite, sericitized.
380–381	Tqm	Quartz monzonite, dark greenish gray (GLEY 3/1) to weak red (10R 4/3), 30% K–feldspar, 15% plagioclase, 15% quartz, 5% silica, 20% chlorite, 10% potassic alteration (K–feldspar), 5% jarosite, trace biotite, hornblende, sericitized.
390–395	Tqm	Quartz monzonite, not many cuttings, similar to above, possibly more potassic alteration.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 4–17–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 9057.934
Easting: 17010.420
Elevation: 6205.016

PHELPS DODGE
TYRONE, INC.

Well 455-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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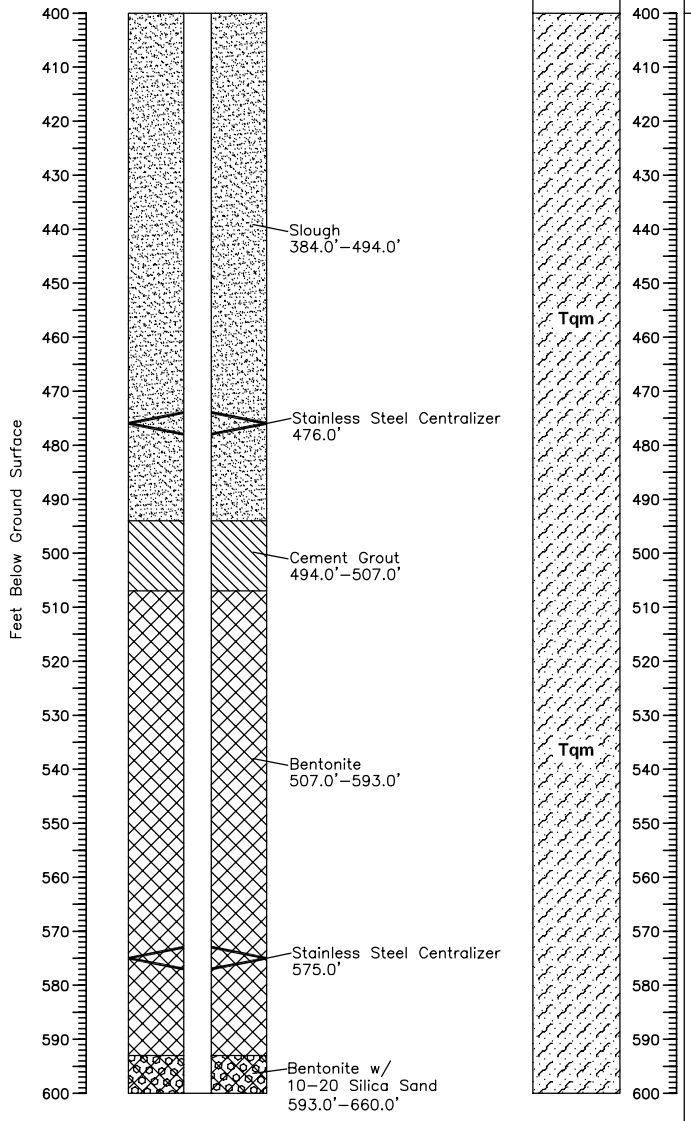

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
400–402	Tqm	Quartz monzonite, dark greenish gray (GLEY 3/1) to weak red (10R 4/4), 30% K–feldspar, 10% plagioclase, 15% quartz, 25% potassic alteration (K–feldspar), 15% chlorite, 5% jarosite and goethite, trace biotite and hornblende.
410–412	Tqm	Quartz monzonite, dark greenish gray (GLEY 3/1) to weak red (10R 4/4), 40% K–feldspar, 10–20% plagioclase, 15–25% quartz, 5% biotite, 10% Fe–oxide, 5–15% sericite and chlorite, trace hornblende.
420–422	Tqm	Quartz monzonite, dark reddish gray (5YR 4/2) to weak red (10R 4/4), 35% K–feldspar, 15–25% plagioclase, 25% quartz, 5% biotite, 5–10% Fe–oxide, trace chlorite, phyllic alteration, quartz, sericite.
430–432	Tqm	Quartz monzonite, dark reddish gray (5YR 4/2) to weak red (10R 4/4), 35% K–feldspar, 15–25% plagioclase, 25% quartz, 5% biotite, 5–10% Fe–oxide, trace chlorite, phyllic alteration, quartz, sericite.
440–442	Tqm	Quartz monzonite, dark reddish gray (5YR 4/2) to weak red (10R 4/4), 25% K–feldspar, 15% plagioclase, 20% quartz, 5% biotite, 5% Fe–oxide, trace chlorite, phyllic alteration, quartz, sericite.
450–452	Tqm	Quartz monzonite, dark reddish gray (5YR 4/2) to weak red (10R 4/4), 25% K–feldspar, 15% plagioclase, 20% quartz, 5% biotite, 5% Fe–oxide, trace chlorite, phyllic alteration, quartz, sericite, at 455 feet 15% chlorite and clay, dark red (10R 4/8).
460–462	Tqm	Quartz monzonite, dark greenish gray (GLEY 3/1) to red (10R 4/8), 30% K–feldspar, 10% plagioclase, 15% quartz, 15% chloride, 5% Fe–oxide, trace biotite and hornblende, phyllic alteration and quartz/sericite.
470–472	Tqm	Quartz monzonite, dark greenish gray (5GY 3/1) to red (10R 4/8), red dominant, 30% K–feldspar, 10% plagioclase, 15% quartz, 15% chloride, 5% Fe–oxide, trace biotite and hornblende, phyllic alteration and quartz/sericite.
480–482	Tqm	Quartz monzonite, red (10R 4/8) with minor dark greenish gray, 30% K–feldspar, 10% plagioclase, 15% quartz, 15% chloride, 5% Fe–oxide, trace biotite and hornblende, phyllic alteration and quartz/sericite.
490	Tqm	Quartz monzonite, red (10R 4/8) with minor dark greenish gray and white, 30% K–feldspar, 10% plagioclase, 15% quartz, 15% chloride, 5% Fe–oxide, trace biotite and hornblende, phyllic alteration and quartz/sericite.
500–502	Tqm	Quartz monzonite, strong brown (7.5YR 5/8) with red and white, 30% quartz, 30–40% white feldspar, 5–10% pink feldspar, 5% biotite, 5–10% Fe–oxide, sericite/quartz alteration more abundant.
510–512	Tqm	Quartz monzonite, strong brown (7.5YR 5/8) with red and white, 30% quartz, 30–40% white feldspar, 5–10% pink feldspar, 5% biotite, 5–10% Fe–oxide, sericite/quartz alteration more abundant.
520–522	Tqm	Quartz monzonite, strong brown (7.5YR 5/8) with red and white, 30% quartz, 30–40% white feldspar, 5–10% pink feldspar, 5% biotite, 5–10% Fe–oxide, sericite/quartz alteration more abundant.
530–532	Tqm	Quartz monzonite, greenish gray (10GY 5/1) to strong brown (7.5YR 5/8), mostly white feldspar and quartz with trace pink feldspar and biotite, chloritic/sericite.
540–542	Tqm	Quartz monzonite, weak red (10R 5/4) to white and yellowish brown, equal amounts of quartz, pink and white feldspar, trace biotite, Fe–oxide.
550–552	Tqm	Quartz monzonite, weak red (10R 5/4) to white and yellowish brown, equal amounts of quartz, pink and white feldspar, trace biotite, Fe–oxide.
560–562	Tqm	Quartz monzonite, weak red (10R 5/4) to white and yellowish brown, equal amounts of quartz, pink and white feldspar, trace biotite, Fe–oxide.
570–572	Tqm	Quartz monzonite, weak red (10R 5/4) to white and yellowish brown, equal amounts of quartz, pink and white feldspar, trace biotite, Fe–oxide.
580–582	Tqm	Quartz monzonite, weak red (10R 5/4) to white and yellowish brown, equal amounts of quartz, pink and white feldspar, trace biotite, Fe–oxide.
590–592	Tqm	Quartz monzonite, weak red (10R 5/4) to white and yellowish brown, equal amounts of quartz, pink and white feldspar, trace biotite, Fe–oxide.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 4–17–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 9057.934
Easting: 17010.420
Elevation: 6205.016

PHELPS DODGE
TYRONE, INC.

Well 455-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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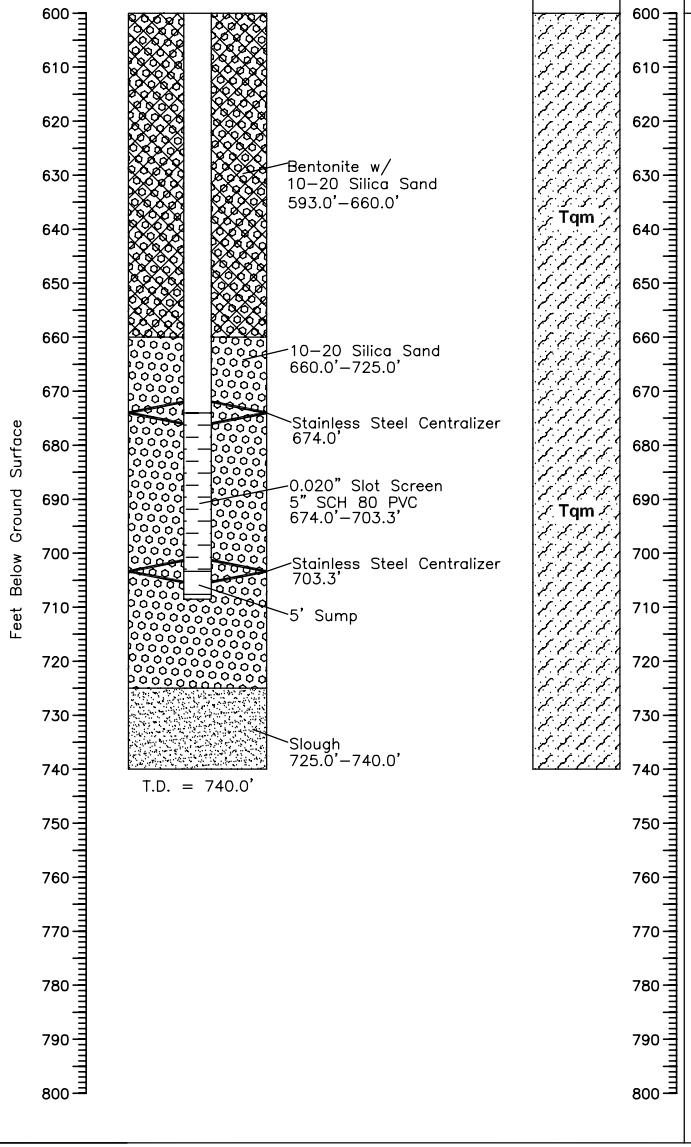

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
600–602	Tqm	Quartz monzonite, weak red (10R 5/4) to white and yellowish brown, equal amounts of quartz, pink and white feldspar, trace biotite, Fe-oxide.
610–612	Tqm	Quartz monzonite, strong brown (7.5YR 5/8) with less abundant greenish gray (10GY 5/1) and white, mostly white feldspar and quartz, minor pink feldspar, Fe-oxide more abundant, chlorite, trace biotite.
620–622	Tqm	Quartz monzonite, strong brown (7.5YR 5/8) with less abundant greenish gray (10GY 5/1) and white, mostly white feldspar and quartz, minor pink feldspar, Fe-oxide more abundant, chlorite, trace biotite.
630–632	Tqm	Quartz monzonite, greenish gray (10GY 5/1) to strong brown (7.5 YR 5/5) and white, mostly white feldspar and quartz, minor pink feldspar, decrease in Fe-oxide, increase in chloritization, trace biotite.
640–642	Tqm	Quartz monzonite, greenish gray (10GY 5/1) to strong brown (7.5 YR 5/5) and white, mostly white feldspar and quartz, minor pink feldspar, decrease in Fe-oxide, increase in chloritization, trace biotite.
650–652	Tqm	Quartz monzonite, greenish gray (10GY 5/1) to strong brown (7.5 YR 5/5) and white, mostly white feldspar and quartz, minor pink feldspar, decrease in Fe-oxide, increase in chloritization, trace biotite.
660–662	Tqm	Quartz monzonite, greenish gray (10GY 5/1) to strong brown (7.5 YR 5/5) and white, mostly white feldspar and quartz, minor pink feldspar, decrease in Fe-oxide, increase in chloritization, trace biotite.
670–672	Tqm	Quartz monzonite, greenish gray (10GY 5/1) to strong brown (7.5 YR 5/5) and white, mostly white feldspar and quartz, minor pink feldspar, decrease in Fe-oxide, increase in chloritization, trace biotite.
680–682	Tqm	Quartz monzonite, greenish gray (10GY 5/1) to strong brown (7.5 YR 5/5) and white, mostly white feldspar and quartz, minor pink feldspar, decrease in Fe-oxide, increase in chloritization, trace biotite.
690–692	Tqm	Quartz monzonite, greenish gray (10GY 5/1) to strong brown (7.5 YR 5/5) and white, mostly white feldspar and quartz, minor pink feldspar, decrease in Fe-oxide, increase in chloritization, trace biotite.
700–702	Tqm	Quartz monzonite, greenish gray (10BG 5/1) to white with trace of brown, mostly quartz and white feldspar, pyrite, trace sericite, very little pink feldspar and Fe-oxide, trace biotite.
710–712	Tqm	Quartz monzonite, greenish gray (10BG 5/1) to white with trace of brown, mostly quartz and white feldspar, pyrite, trace sericite, very little pink feldspar and Fe-oxide, trace biotite.
720–722	Tqm	Quartz monzonite, greenish gray (10BG 5/1) to white with trace of brown, mostly quartz and white feldspar, pyrite, trace sericite, very little pink feldspar and Fe-oxide, trace biotite.
730–732	Tqm	Quartz monzonite, greenish gray (10BG 5/1) to white with trace of brown, mostly quartz and white feldspar, pyrite, trace sericite, very little pink feldspar and Fe-oxide, trace biotite.
739–740	Tqm	Quartz monzonite, greenish gray (10BG 5/1) to white with trace of brown, mostly quartz and white feldspar, pyrite, trace sericite, very little pink feldspar and Fe-oxide, trace biotite.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 4-17-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 9057.934
Easting: 17010.420
Elevation: 6205.016

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Well 455-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
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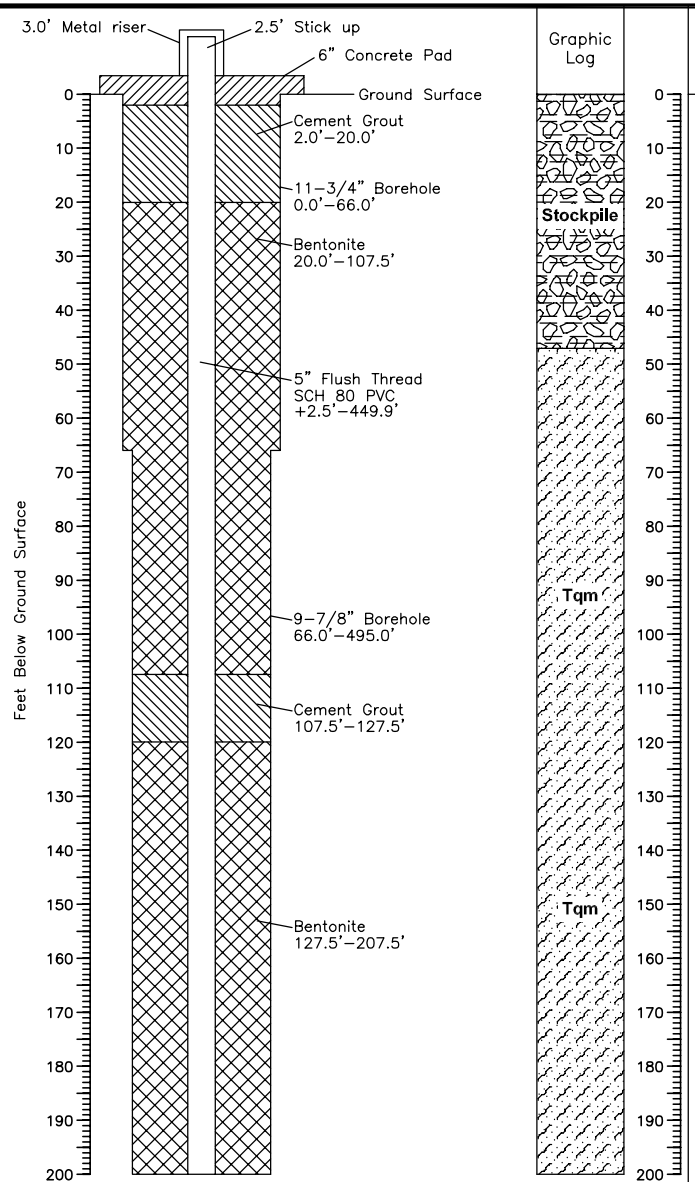

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
9–10	Tqm	Quartz monzonite, brown (7.5YR 5/4) to red (10R 4/6) and white, 90% fragments (5–25 mm), 60% quartz, 25% K-feldspar, trace biotite/strongly oxidized, 5% Fe-oxide, sericite, 20% fines to 5 mm are mostly quartz, subrounded, dry, 3 mm size light blue fragment/chrysocolla(?).
19–20	Tqm	Quartz monzonite, strong brown (7.5YR 4/6), 10% rock fragments quartz monzonitic, 90% quartz, 5% biotite, sericite, phyllic alteration, 5–35 mm, 90% fines are silt to coarse sand fraction, mostly quartz, subangular, dry to moist, poorly sorted.
29–30	Tqm	Quartz monzonite, reddish gray (5YR 5/2) to strong borwn (7.5YR 4/6), 70% rock fragments (5–25 mm), 50–60% quartz, 25–30% K-feldspar, trace biotite, 5% Fe-oxide, trace yellow/orange/green (jarosite), trace sericite, very small specks may be pyrite, 30% fines are clay to medium sand fraction (mostly quartz).
39–40	Tqm	Quartz monzonite, brown (7.5YR 5/2), mostly fines to 5 mm size, 40–50% quartz, 40–50% feldspar (reddish to white) with sericite, 5% Fe-oxide, 5% yellowish/green jarosite, trace sericite.
49–50	Tqm	Quartz monzonite, reddish gray (10R 6/1), 30–40% quartz, 40–50% K-feldspar, traces of chrysocolla, pyrite, and biotite in quartz, <5% greenish yellow jarosite, <5% Fe-oxide, trace sericite, size from 1 mm to 25 mm.
59–60	Tqm	Quartz monzonite, brown (7.5YR 5/3), 15% rock fragments to 25 mm, 85% smaller than 5 mm, 40–50% quartz, 30–40% K-feldspar, 5% Fe-oxide, trace biotite, feldspar sericitized.
69–70	Tqm	Quartz monzonite, strong brown (7.5YR 4/6) (clay, silt) to brown (7.5YR 5/4) and white fragments to 10 mm, subrounded, 50–60% quartz, 30–40% K-feldspar, 5% biotite, 5% Fe-oxide, very small amount pyrite.
79–80	Tqm	Quartz monzonite, strong brown (7.5YR 4/6) (clay, silt) to brown (7.5YR 5/4) and white fragments to 10 mm, subrounded, 50–60% quartz, 30–40% K-feldspar, 5% biotite, 5% Fe-oxide, trace jarosite.
89–100	Tqm	Quartz monzonite, brown (7.5YR 5/4) to white, mostly fines, 50–60% quartz, 30–40% feldspar, 5% biotite/hornblende, 5–10% Fe-oxide. At 91'–95' 5% red clay (2.5YR 5/6) and moist, subrounded grains, feldspar sericitized.
99–100	Tqm	Quartz monzonite, brown (7.5YR 5/4) to white, mostly clay, silt to medium sand fraction, 50–60% quartz, 30–40% feldspar, 5% biotite/hornblende, 5–10% Fe-oxide.
109–110	Tqm	Quartz monzonite, brown (7.5YR 5/4) to white, quartz, feldspar, 5% biotite/hornblende, 5% Fe-oxide, subangular, 20% clay fraction, rock fragments to 25 mm, sericite. At 115' 20% yellowish red clay (5YR 5/8) with quartz monzonite rock fragments up to 25 mm diameter.
119–120	Tqm	Quartz monzonite, yellowish red (5YR 5/8) to brown to white, quartz, feldspar, 5% biotite/hornblende, 5% Fe-oxide, subangular, 20% clay fraction, rock fragments to 25 mm, sericite.
129–130	Tqm	Quartz monzonite, brown (7.5YR 5/4) to white, clay (20%) to coarse sand fraction, 40–50% quartz, 40–50% K-feldspar, 5% biotite, 5% Fe-oxide, trace jarosite, subrounded grains, feldspar sericitized.
139–140	Tqm	Quartz monzonite, brown (7.5YR 5/4) to white, 20% clay to 15 mm fragment size, 40–50% quartz, 40–50% K-feldspar, 5% biotite, 5% Fe-oxide, subrounded grains, feldspars red and white, sericitized.
149–150	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, 20% clay to 15 mm fragment size, 40–50% quartz, 40–50% K-feldspar, 5% biotite, 5% Fe-oxide, subrounded grains, feldspars red and white, sericitized.
159–160	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, 20% clay to 15 mm fragment size, 40–50% quartz, 40–50% K-feldspar, 5% biotite, 5% Fe-oxide, subrounded grains, feldspars red and white, sericitized.
169–170	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, 20% clay to 20 mm fragment size, 40–50% quartz, 40–50% K-feldspar, 5% biotite, 5% Fe-oxide, subrounded grains, feldspars red and white, sericitized.
179–180	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, 10% clay and rock fragments to 20 mm, 40–50% quartz, 40–50% K-feldspar (red and white), 5% biotite and hornblende, 5% Fe-oxide, subrounded fragments, trace jarosite, feldspar sericitized.
189–190	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, 10% clay and rock fragments to 20 mm, 40–50% quartz, 40–50% K-feldspar (red and white), 5% biotite and hornblende, 5% Fe-oxide, subrounded fragments, trace jarosite, feldspar sericitized.
199–200	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, 10% clay and rock fragments to 20 mm, 40–50% quartz, 40–50% K-feldspar (red and white), 5% biotite and hornblende, 5% Fe-oxide, subrounded fragments, trace jarosite, feldspar sericitized.

Geologist: L. Rought
Driller: WDC Exploration.
Date completed: 6-5-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6101.426
Easting: 15391.775
Elevation: 6261.675

PHELPS DODGE
TYRONE, INC.

Well 455-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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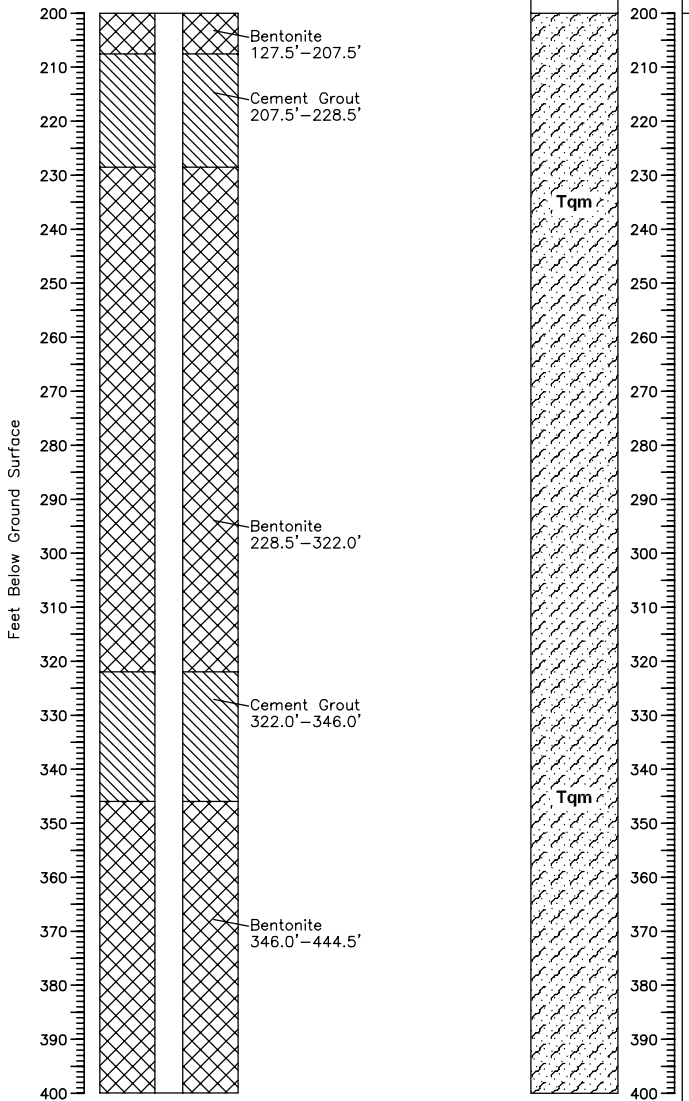

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209-210	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, 10% clay and rock fragments to 20 mm, 40-50% quartz, 40-50% K-feldspar (red and white), 5% biotite and hornblende, 5% Fe-oxide, subrounded fragments, trace jarosite, feldspar sericitized.
219-220	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, 10% clay and rock fragments to 20 mm, 40-50% quartz, 40-50% K-feldspar (red and white), 5% biotite and hornblende, 5% Fe-oxide, subrounded fragments, trace jarosite, feldspar sericitized.
229-230	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% red and white K-feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized at veins.
239-240	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% red and white K-feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized at veins.
249-250	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, clay (15%) to rock fragment size of 25 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized.
259-260	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, clay (15%) to rock fragment size of 25 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized.
269-270	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized.
279-280	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized.
289-290	Tqm	Quartz monzonite, brown (7.5YR 5/4) to gray (7.5YR 6/1) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized.
299-300	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized, slightly chloritized.
309-310	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized, slightly chloritized.
319-320	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized, slightly chloritized.
329-330	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized, slightly chloritized.
339-340	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, clay (15%) to rock fragment size of 10 mm, 40-50% quartz, 40-50% white K-feldspar dominant over red feldspar, trace sericite, 5% biotite and hornblende, 5% Fe-oxide and trace jarosite, subrounded grains, biotite oxidized, slightly chloritized.
349-350	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments, clay (10-15%) to coarse sand, slightly chloritized.
359-360	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm), clay (10-15%) to coarse sand, slightly chloritized.
369-370	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm), clay (20-25%) to coarse sand, slightly chloritized.
379-380	Tqm	Quartz monzonite, gray (2.5Y 6/1) to brown (7.5YR 5/4) and white, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm), clay (15-20%) to coarse sand, slightly more chloritized than above.
389-390	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel, gravel more chloritized than above, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, less Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm), 10-15% clay fraction, rest mostly size of coarse sand.
399-400	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel (mostly coarse sand), chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).

Geologist: L. Rought
Driller: WDC Exploration.
Date completed: 6-5-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6101.426
Easting: 15391.775
Elevation: 6261.675

PHELPS DODGE
TYRONE, INC.

Well 455-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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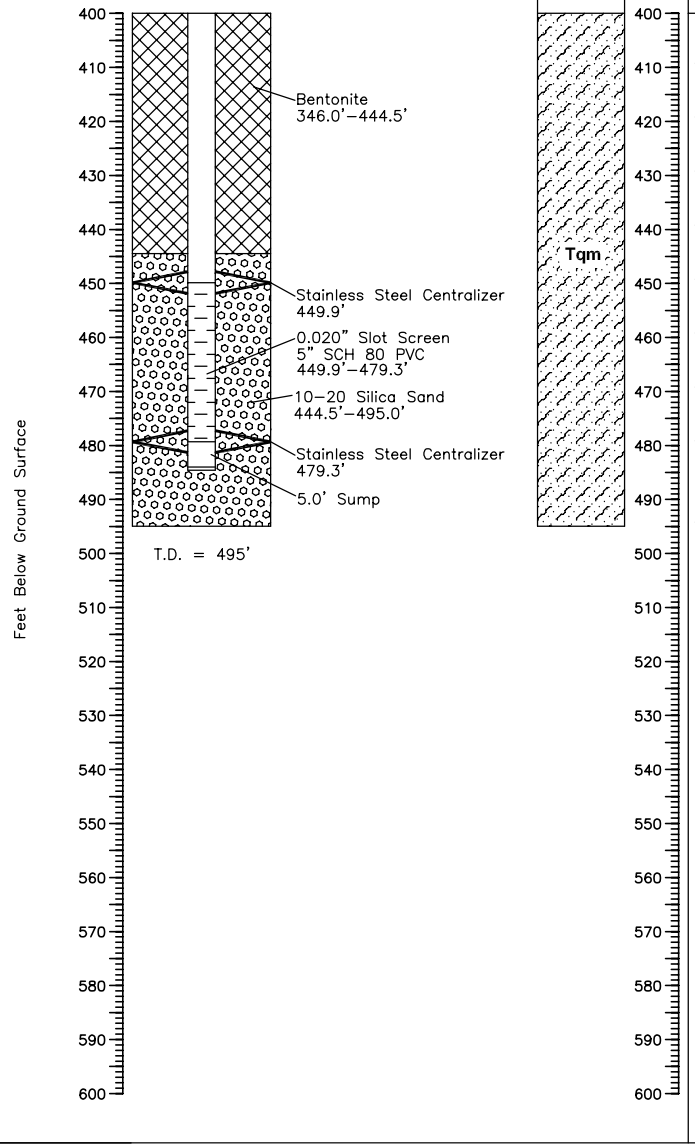

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
409-410	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel (mostly coarse sand), chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).
419-420	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel (mostly coarse sand), chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).
429-430	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel (mostly coarse sand), chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).
439-440	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel (mostly coarse sand), chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).
449-450	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel (mostly coarse sand), chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).
459-460	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel (mostly small gravel), chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).
469-470	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel, chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).
479-480	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel, chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).
494-495	Tqm	Quartz monzonite, greenish gray (GLEY1 5/1) and white, clay (5-10%) to small gravel, chloritized, 40-50% quartz, 40-50% white and pink feldspar, 5% biotite, Fe-oxide staining, trace hornblende, jarosite, subrounded to subangular rock fragments (15 mm).

Geologist: L. Rought
Driller: WDC Exploration.
Date completed: 6-5-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 6101.426
Easting: 15391.775
Elevation: 6261.675

PHELPS DODGE
TYRONE, INC.

Well 455-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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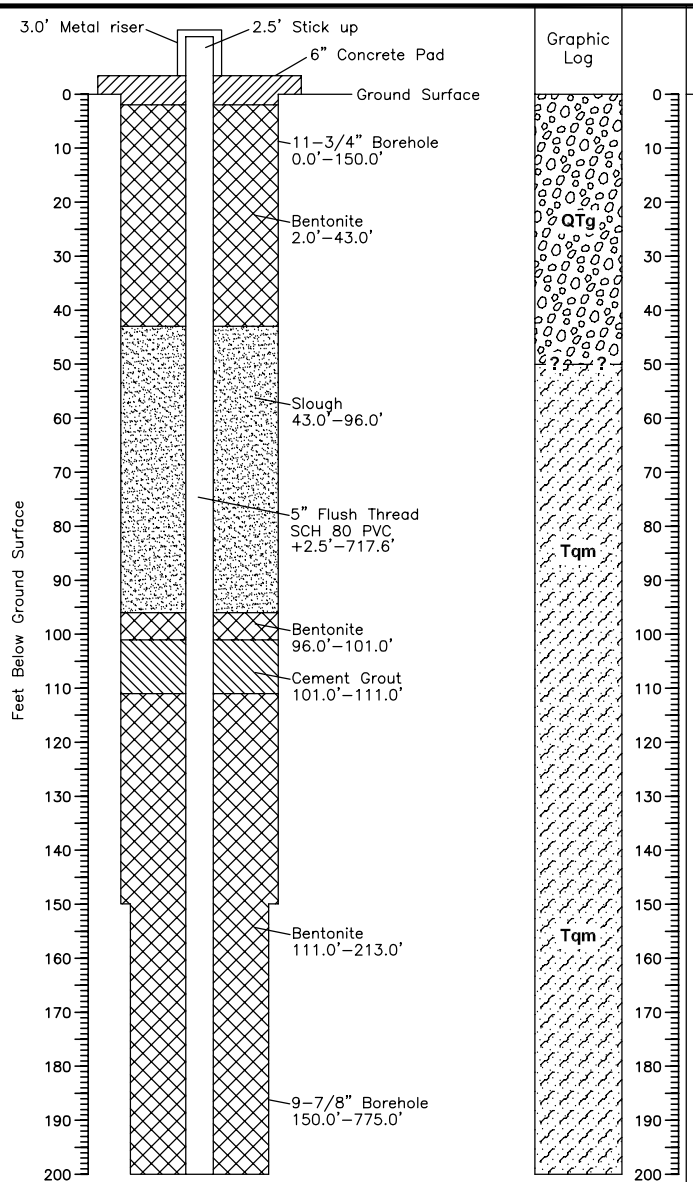

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–2	SW	Sand with gravel, dark red (2.5YR 4/6), very fine to coarse sand, 5% clay and silt, 20% gravel, poorly sorted, subrounded, soft consistency, very moist, gravel: monzonite, silicified, 5% pyrite, trace biotite, sericite.
10–11	SW	Sand with gravel, weak red (2.5YR 5/4), very fine to coarse sand, 5% clay and silt, 40% gravel, poorly sorted, subrounded, soft consistency, very moist, gravel: light gray (GLEY 7/1) to white.
20–21	GW	Gravel with sand, red (2.5YR 6/6), gravel to 2 inch diameter with 40% fine to coarse sand and 10% silt/clay, saturated, mostly monzonite, silicification, plagioclase, white with absortion veins, sericite, trace Fe-oxide.
30–31	SW	Sand with gravel, reddish brown (5YR 5/4), very fine to coarse sand, 5% silt/clay, poorly sorted, gravel mostly fine up to 1 mm diameter, moist, 20% gravel silicified monzonite with sericite, trace biotite, <5% Fe-oxide, moist to wet.
40–41	SW	Sand with gravel, brown (7.5YR 5/4), fine to coarse sand with 45% very fine gravel, poorly sorted, subangular to subrounded, gravel mostly quartz, Fe-oxide, sericite (quartz monzonite), moist.
50–51	SW	Sand with gravel, brown (7.5YR 5/4), fine to coarse sand with 10% very fine gravel, poorly sorted, subangular to subrounded, gravel mostly quartz, Fe-oxide, sericite (quartz monzonite), moist.
		No samples from 60 to 620 feet.

Note: QTg and Tqm contact unknown, as no sample was recovered from 60–620 feet.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5-4-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 11022.603
Easting: 15365.054
Elevation: 6206.293

PHELPS DODGE
TYRONE, INC.

Well 670-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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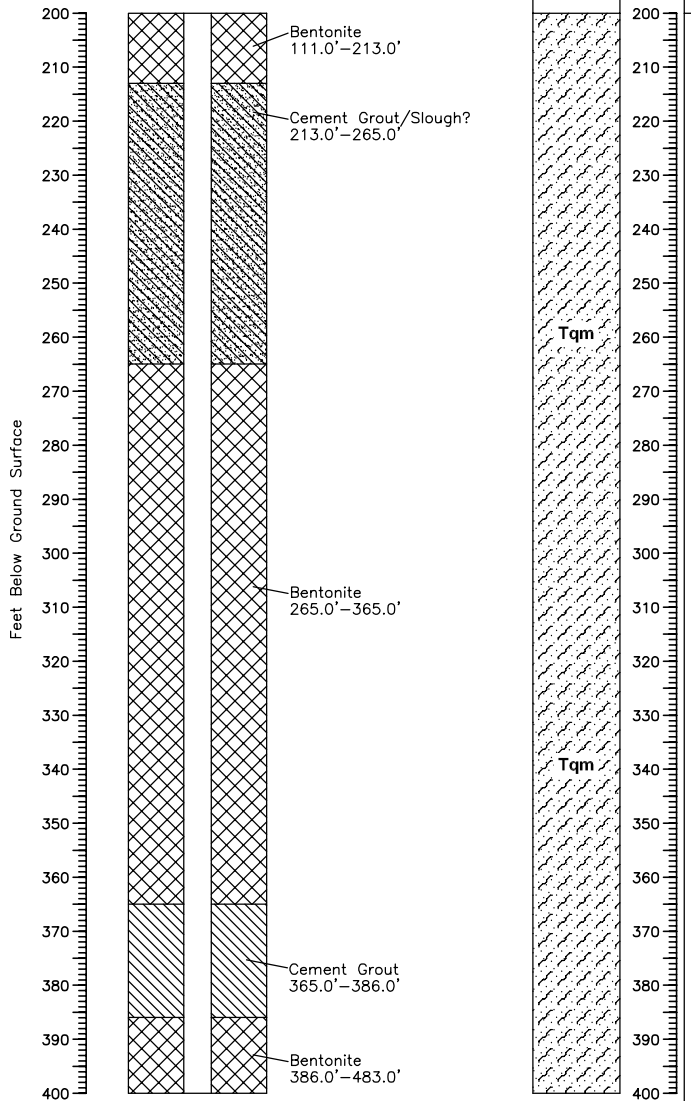

Graphic Log	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
			No samples from 60 to 620 feet.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5–4–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 11022.603
Easting: 15365.054
Elevation: 6206.293

PHELPS DODGE
TYRONE, INC.

Well 670-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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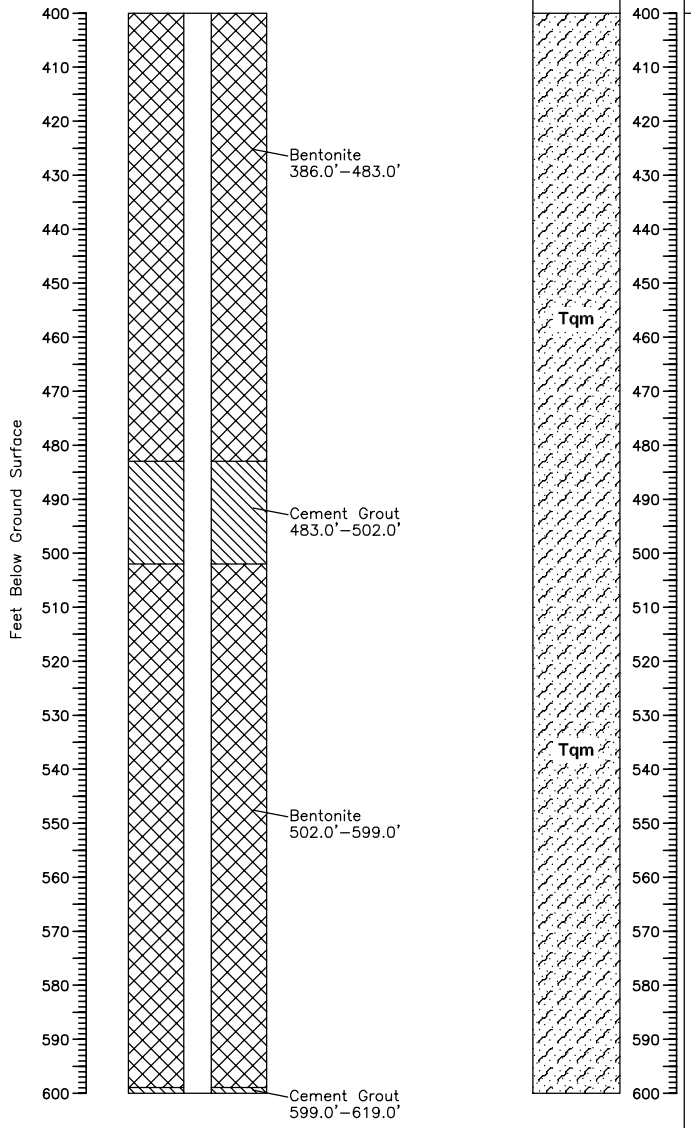

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
		No samples from 60 to 620 feet.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5-4-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 11022.603
Easting: 15365.054
Elevation: 6206.293

PHELPS DODGE
TYRONE, INC.

Well 670-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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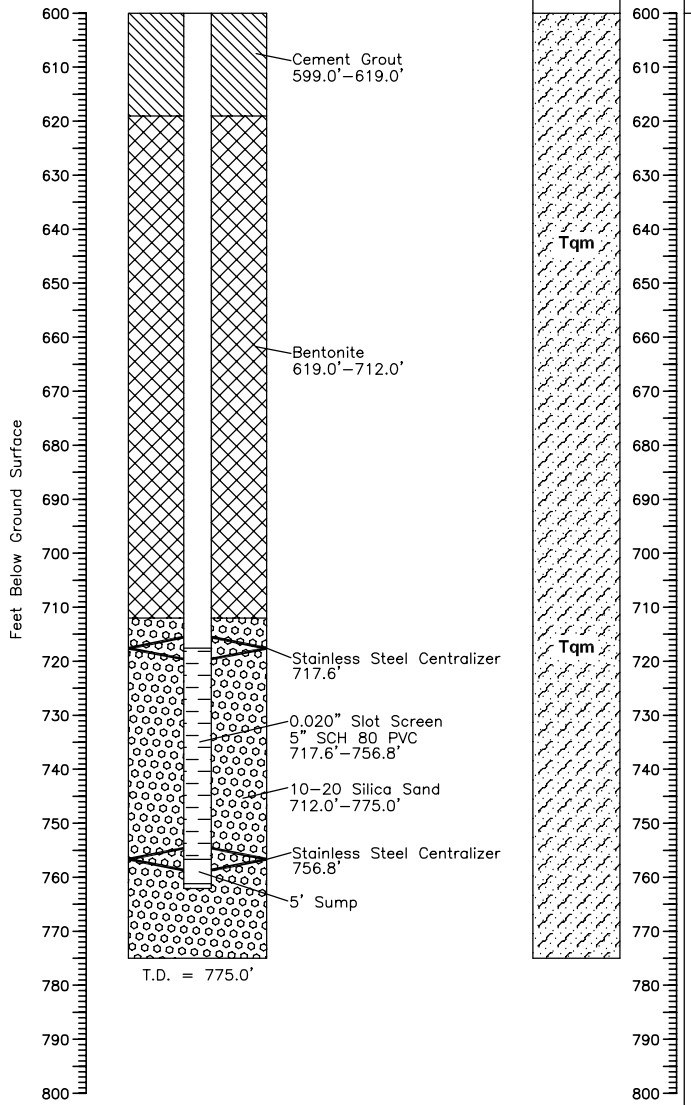

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
		No samples from 60 to 620 feet.
625–630	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz.
635–640	Tqm	Quartz monzonite, light gray (5YR 7/1), pink (5YR 7/4), and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace Fe–oxide.
648–650	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, mineralogy appears less altered than above, trace reddish yellow (7.5YR 6/6) clay, chips <20 mm diameter.
657–660	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter.
667–670	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter.
677–680	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter.
687–690	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter.
697–700	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter.
725–731	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter, increase in white clay in drilling fluid (very little sample recovery).
735–740	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter, white clay in drilling fluid (1 tablespoon of sample).
742–744	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter, white clay in drilling fluid (1 tablespoon of sample).
755–760	Tqm	Quartz monzonite, light gray (5YR 7/1) and white, porphyritic with aphanitic ground mass, feldspar phenocrysts altered to white sericite/clay (argillized), small amounts of very fine biotite, trace pyrite, ground mass mostly quartz, trace reddish yellow (7.5YR 6/6) clay, chips 2–4 mm diameter, white clay in drilling fluid (1 tablespoon of sample).

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 5–4–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 11022.603
Easting: 15365.054
Elevation: 6206.293

PHELPS DODGE
TYRONE, INC.

Well 670-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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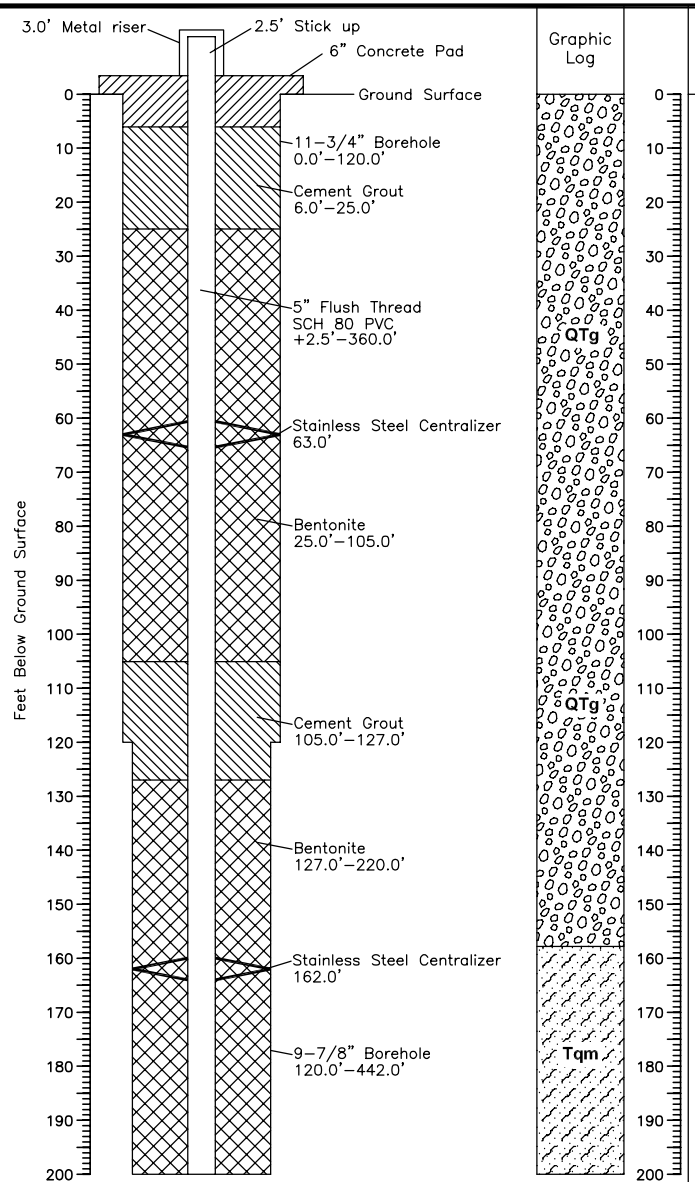

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
0–2	SW	Sand, light yellowish brown (10YR 6/6), very fine– to coarse–grained, poorly sorted, angular to subrounded clasts, minor gravel, moderately consolidated, dry.
10–12	SW	Sand with gravel, light yellowish brown (10YR 6/6), fine– to coarse–grained sand with gravel up to 3/8 inch diameter (30%), poorly sorted, angular clasts, quartz and quartz monzonite, dry.
20–22	SW	Sand with gravel, light yellowish brown (10YR 6/6), fine– to coarse–grained sand with gravel up to 2 inch diameter (probably larger) (30%), poorly sorted, angular clasts, quartz, quartz monzonite, and K–feldspar altered quartz monzonite, dry to damp.
30–32	SW	Sand with gravel, light yellowish brown (10YR 6/6), fine– to coarse–grained sand with gravel up to 2 inch diameter (probably larger) (30%), poorly sorted, angular clasts, quartz, quartz monzonite, and K–feldspar altered quartz monzonite, dry to damp, at 32–33 feet soil horizon (dark brown with roots).
40–42	SW	Sand, yellowish brown (10YR 5/4), fine– to coarse–grained, few pebbles and gravel, poorly sorted, subrounded clasts, moderately consolidated, damp to moist, at 45 feet resistant drilling.
50–52	SW	Sand with pebble gravel, light yellowish brown (10YR 6/4), medium– to coarse–grained with 3/8 inch diameter pebbles (20%), poorly sorted, subrounded clasts, mostly quartz, some K–feldspar, a lot of lithologic fragments, strongly consolidated, moist.
60–62	SW	Sand with pebbles, light yellowish brown (10YR 6/4), medium– to coarse–grained with 3/8 inch diameter pebbles (20%), some fine–grained sand, poorly sorted, subrounded clasts, mostly quartz, more K–feldspar clasts than above, a lot of lithologic fragments, strongly consolidated, moist.
70–72	SW	Sand with pebble gravel, pale brown (10YR 6/3), fine– to coarse–grained sand with pebbles (25%), poorly sorted, angular to subrounded clasts, strongly consolidated, dry to damp.
80–82	SW	Sand with pebble gravel, pale brown (10YR 6/3), fine– to coarse–grained sand with pebbles (25%), poorly sorted, angular to subrounded clasts, strongly consolidated, dry to damp.
90–92	SW	Sand with pebble gravel, pale brown (10YR 6/3), fine– to coarse–grained sand with pebbles (25%), gravel up to 1 inch diameter, poorly sorted, angular to subrounded clasts, strongly consolidated, dry to damp.
100–102	SW	Sand with gravel, pale brown (10YR 6/3), fine–grained sand to 1 inch diameter gravel, poorly sorted, angular to rounded clasts, strongly consolidated, dry to damp, clasts mostly quartz with some lithologic fragments.
110–112	SM	Silty sand, very pale brown (10YR 7/3), silt to coarse–grained sand, probably some gravel, poorly sorted, angular to subrounded clasts, moderately to strongly consolidated, dry.
120–121	SM	Silty sand, light gray (10YR 7/2), silt (20%) to coarse–grained sand, mostly very fine to fine–grained, poorly sorted, angular to rounded grains, moderately consolidated, dry.
130–132	SW	Sand with silt, very pale brown (10YR 7/3), silt (10%) to very coarse–grained sand, few pebbles, mostly medium– to coarse–grained, poorly sorted, angular to rounded grains, moderately to strongly consolidated, dry.
140–141	SW/GW	Sand with gravel, very pale brown (10YR 8/2), fine– to coarse–grained sand and pebble gravel (probably larger), mostly coarse sand and gravel, poorly sorted, angular clasts and chips, strongly consolidated, dry.
150–152	SM	Silty sand, light gray (10YR 7/1), silt (20%) to medium–grained sand, mostly silt and very fine sand, poorly sorted, subrounded to rounded grains, strongly consolidated, dry, switch to fluid (foam) assisted drilling at 153 feet, at 158 feet encounter quartz monzonite.
160–162	Tqm	Quartz monzonite, 20% plagioclase, 40% K–feldspar, 35% quartz, 1% mafic (biotite), 3% goethite, 2% K–feldspar minor alteration, K–feldspar sericitized.
170–172	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow, 45% K–feldspar, 25% plagioclase, 25% quartz, 3% goethite, 1% K–feldspar alteration, 1% biotite, K–feldspar alteration to white clay (sericitized).
180–181	Tqm	Quartz monzonite, white to brownish yellow (10YR 6/6), 40% K–feldspar, 25% plagioclase, 35% quartz, >1% biotite, 2% goethite, 1% K–feldspar alteration, 1% hornblende(?), K–feldspar often altered to white clay (sericite).
190–191	Tqm	Quartz monzonite, light brownish gray (10YR 6/2), 30% K–feldspar, 15% plagioclase, 50% quartz, 3% biotite, 2% goethite, >1% jarosite.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 4–3–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 13241.686
Easting: 14872.283
Elevation: 6154.101

PHELPS DODGE
TYRONE, INC.

Well 670-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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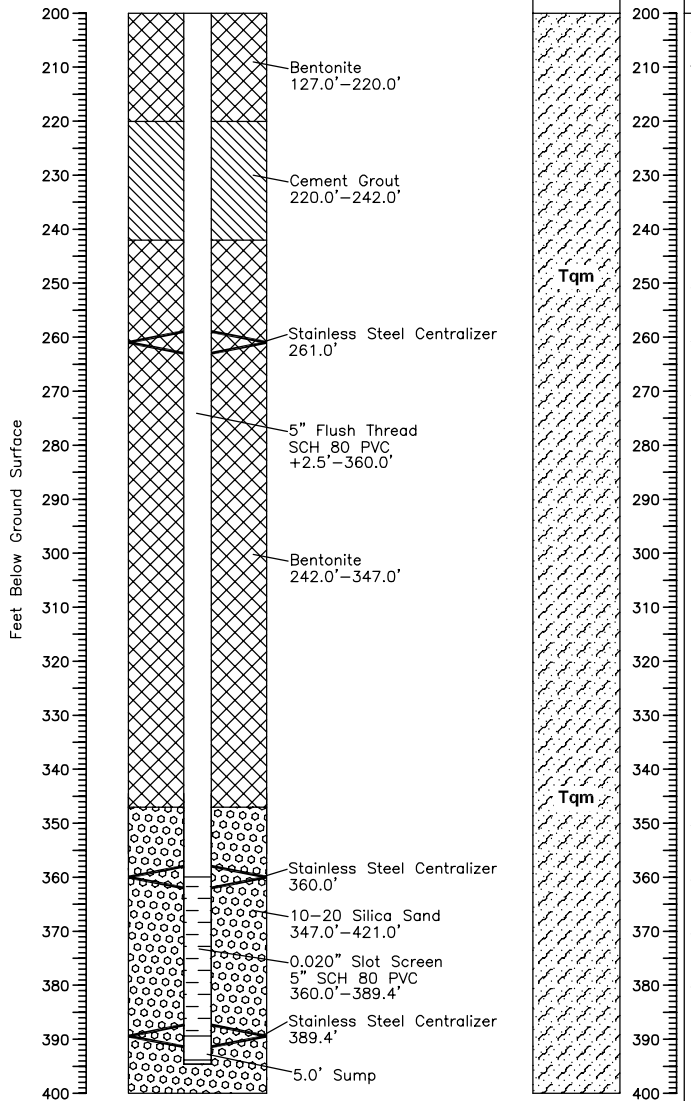

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
200–202	Tqm	Quartz monzonite, white (2.5Y 8/1) to yellowish brown (10YR 5/4), 40% K–feldspar, 20% plagioclase, 35% quartz, 1% biotite, 3% goethite, 2% K–feldspar alteration, K–feldspar sericitized.
209–210	Tqm	Quartz monzonite, very pale brown (10YR 7/3), 35% K–feldspar, 25% plagioclase, 35% quartz, 1% biotite, 3% goethite, 1% K–feldspar alteration, K–feldspar sericitized.
220–221	Tqm	Quartz monzonite, white (2.5Y 8/1) to yellowish brown (10YR 5/6), 35% K–feldspar, 20% plagioclase, 50% quartz, 1% biotite, 3% goethite, 1% K–feldspar alteration, K–feldspar sericitized.
229–231	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 45% K–feldspar, 20% plagioclase, 30% quartz, 1% biotite, 3% goethite, 1% K–feldspar alteration, K–feldspar sericitized.
240–241	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow, some pink (5YR 7/3), 45% K–feldspar, 20% plagioclase, 30% quartz, 1% biotite, 2% goethite, 2% K–feldspar alteration (sericitized).
250–252	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow, some pink (5YR 7/3), 45% K–feldspar, 20% plagioclase, 30% quartz, 1% biotite, 2% goethite, 2% K–feldspar alteration (sericitized).
260–262	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 40% K–feldspar, 25% plagioclase, 30% quartz, >1% biotite, 2% goethite, 1% K–feldspar alteration (minor sericitization).
270–272	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 40% K–feldspar, 25% plagioclase, 30% quartz, >1% biotite, 2% goethite, 1% K–feldspar alteration (minor sericitization).
280–281	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 40% K–feldspar, 25% plagioclase, 30% quartz, 1% biotite, 2% goethite, 1% K–feldspar alteration (sericitized).
290–291	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 35% K–feldspar, 30% plagioclase, 30% quartz, >1% biotite, 3% goethite, 1% K–feldspar alteration (minor sericitization).
300–301	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 35% K–feldspar, 20% plagioclase, 40% quartz, 1% biotite, 4% goethite, >1% K–feldspar alteration (minor sericitization).
310–311	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 40% K–feldspar, 20% plagioclase, 35% quartz, 1% biotite, 3% goethite, sericitized, 1% jarosite.
320–321	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 40% K–feldspar, 20% plagioclase, 35% quartz, 1% biotite, 3% goethite, sericitized, 1% jarosite.
330–331	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 35% K–feldspar, 25% plagioclase, 35% quartz, >1% biotite, 2% magnetite(?), 2% goethite, minor sericitization, 1% jarosite.
340–341	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 35% K–feldspar, 25% plagioclase, 35% quartz, 1% biotite, trace hornblende, 3% goethite, 1% K–feldspar alteration (sericitized).
350–352	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 35% K–feldspar, 25% plagioclase, 35% quartz, 1% biotite, trace hornblende, >3% goethite, 1% K–feldspar alteration (highly sericitized).
360–362	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 35% K–feldspar, 25% plagioclase, 35% quartz, 1% biotite, trace hornblende, goethite rich, 1% K–feldspar alteration (highly sericitized), possible fracture zone, 1 inch diameter and lots of cuttings.
370–372	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 35% K–feldspar, 25% plagioclase, 35% quartz, 1% biotite, trace hornblende, goethite rich, 1% K–feldspar alteration (highly sericitized), possible fracture zone, 1 inch diameter and lots of cuttings.
380–383	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), 35% K–feldspar, 25% plagioclase, 35% quartz, 1% biotite, trace hornblende, goethite rich, 1% K–feldspar alteration (highly sericitized), some white clay, possible fracture zone, 1 inch diameter and lots of cuttings.
390–391	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), some white clay, 35% K–feldspar, 25% plagioclase, 35% quartz, 1% biotite, trace hornblende, goethite rich, 1% K–feldspar alteration (highly sericitized), possible fracture zone, 1 inch diameter and lots of cuttings.
399–401	Tqm	Quartz monzonite, white (2.5Y 8/1) to brownish yellow (10YR 6/6), a lot of pink K–feldspar alteration, 35% K–feldspar, 25% plagioclase, 20% quartz, 3% goethite, 5% magnetite(?), 2% K–feldspar alteration, at 405 feet encounter water.

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 4–3–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 13241.686
Easting: 14872.283
Elevation: 6154.101

PHELPS DODGE
TYRONE, INC.

Well 670-2005-02

Daniel B. Stephens & Associates, Inc.
9–20–05
JN ES05_0070

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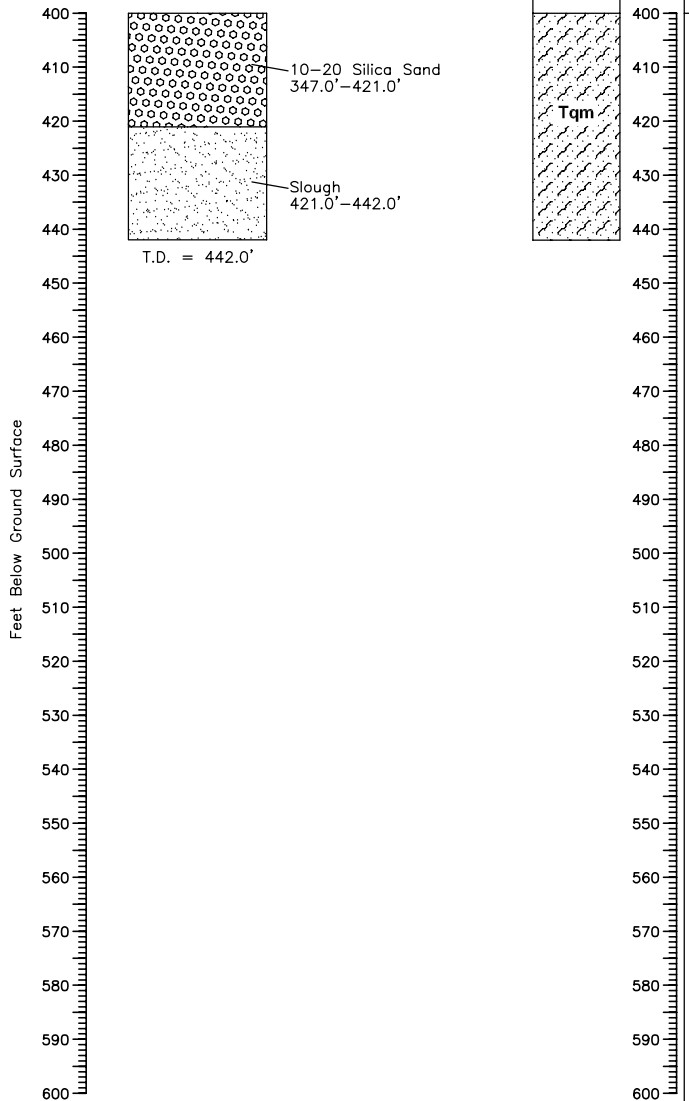

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
410-411	Tqm	Quartz monzonite, very pale brown (10YR 7/4) to dusky red (10R 3/4), 30% K-feldspar, 10% plagioclase, 10% quartz (highly altered), 50% K-feldspar alteration (sericitized), 1% goethite, clear quartz crystals.
419-421	Tqm	Quartz monzonite, light gray (10YR 7/1) to weak red (10R 4/4), 30% sericitized K-feldspar, 10% plagioclase, 10% quartz, 50% K-feldspar alteration (sericitized and potassic alteration), 1% goethite.
430-431	Tqm	Quartz monzonite, light gray (10YR 7/1) to weak red (10R 4/4), 30% sericitized K-feldspar, 10% plagioclase, 10% quartz, 50% K-feldspar alteration (sericitized and potassic alteration), 1% goethite.
439-441	Tqm	Quartz monzonite, weak red (10R 5/2) to (10R 4/4), 10% K-feldspar, 5% plagioclase, 5% quartz, 80% K-feldspar alteration (potassic alteration).

Geologist: C. Pigman
Driller: WDC Exploration
Date completed: 4-3-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters:10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 13241.686
Easting: 14872.283
Elevation: 6154.101

PHELPS DODGE
TYRONE, INC.

Well 670-2005-02

Daniel B. Stephens & Associates, Inc.
9-20-05
JN ES05_0070

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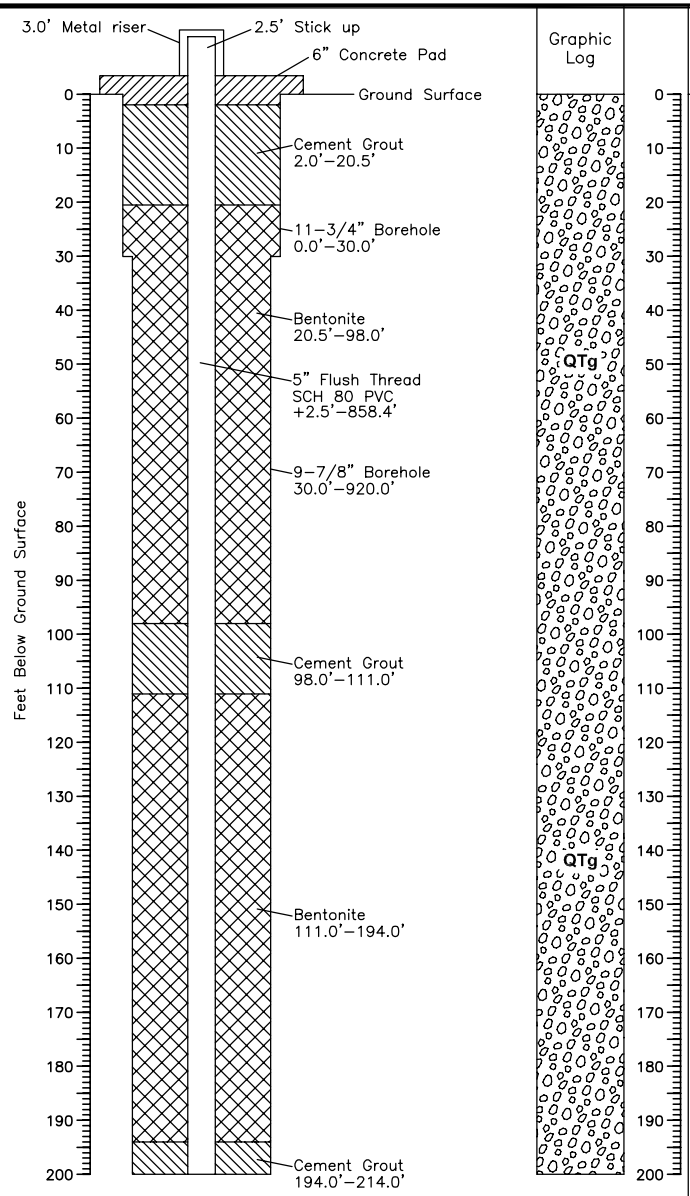

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
9–10	SW	Sand with gravel, light brown (7.5YR 6/3), very fine to coarse sand with trace silt/clay and 15% fine gravel fragments, fines and rock fragments mostly quartz, 20–30% white and pink feldspar, trace biotite, poorly sorted, subangular to subrounded, dry, trace Fe-oxide staining.
19–20	SW	Sand with gravel, light brown (7.5YR 6/3), very fine to coarse sand with trace silt/clay and 15% fine gravel fragments, fines and rock fragments mostly quartz, 20–30% white and pink feldspar, trace biotite, poorly sorted, subangular to subrounded, dry, trace Fe-oxide staining.
29–30	SW	Sand with gravel, light brown (7.5YR 6/3), very fine to coarse sand with trace silt/clay and 25% gravel fragments to 25 mm diameter, fines and rock fragments mostly quartz, 20–30% white and pink feldspar, trace biotite, poorly sorted, subangular to subrounded, dry, trace Fe-oxide staining.
39–40	GW	Gravel, light brown (7.5YR 6/4), gravel to 30 mm diameter with trace fine sand and silt, gravel consists mostly of coarse-grained quartz, white and pink feldspar, trace biotite, trace Fe-oxide, trace sericite, minor dark fine-grained rock fragments, subrounded to subangular, poorly sorted, dry.
49–50	SW	Sand, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and trace very fine gravel, poorly sorted, subangular, dry.
59–60	SW	Sand, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and trace very fine gravel, poorly sorted, subangular, dry.
69–70	SW	Sand, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and trace very fine gravel, poorly sorted, subangular, dry.
79–80	SW	Sand, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and trace very fine gravel, poorly sorted, subangular, dry.
89–90	SW	Sand, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and trace very fine gravel, poorly sorted, subangular, dry.
99–100	SW	Sand with gravel, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and 40% fine gravel, poorly sorted, subangular, dry, rock fragment both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar.
109–110	SW	Sand with gravel, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and 20–25% fine gravel, poorly sorted, subangular, dry, rock fragment both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar.
119–120	SW	Sand, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and trace fine gravel, poorly sorted, subangular, dry, rock fragment both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar.
129–130	SW	Sand, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and 15% fine gravel, poorly sorted, subangular, dry, rock fragment both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar.
139–140	SW	Sand, light brown (7.5YR 6/3), very fine to coarse sand with 5–10% silt/clay and 10–15% fine gravel, poorly sorted, subangular, dry, rock fragment both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar. Inject water at 140 feet.
149–150	SW	Sand with gravel, yellowish red (5YR 4/6), fine to coarse sand with 30% fine gravel to 10 mm diameter, 5–10% silt/clay, mostly quartz, pink and white feldspar, biotite, Fe-oxide staining, subrounded, poorly sorted.
159–160	SW	Sand with gravel, yellowish red (5YR 4/6), fine to coarse sand with 30% fine gravel to 10 mm diameter, 5–10% silt/clay, mostly quartz, pink and white feldspar, biotite, Fe-oxide staining, subrounded, poorly sorted.
169–170	SW	Sand with gravel, reddish brown (5YR 4/4) and white, fine to coarse sand with 40% gravel to 10 mm diameter with slightly more clay than above, mostly quartz, pink and white feldspar, biotite, Fe-oxide staining, subrounded, poorly sorted.
179–180	SW	Sand with gravel, reddish brown (5YR 4/4) and white, fine to coarse sand with rock/gravel fragments to 25 mm diameter, both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar, few small dark gray/black fragments.
189–190	SW	Sand with gravel, reddish brown (5YR 4/4) and white, fine to coarse sand with 40% rock fragments to 25 mm diameter, both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar, few small dark gray/black fragments.
199–200	SW	Sand with gravel, reddish brown (5YR 4/4) and white, fine to coarse sand with 40% rock fragments <10 mm diameter, both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar, few small dark gray/black fragments.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 7-23-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 10543.170
Easting: 23922.410
Elevation: 5991.210

PHELPS DODGE
TYRONE, INC.

Well 896-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

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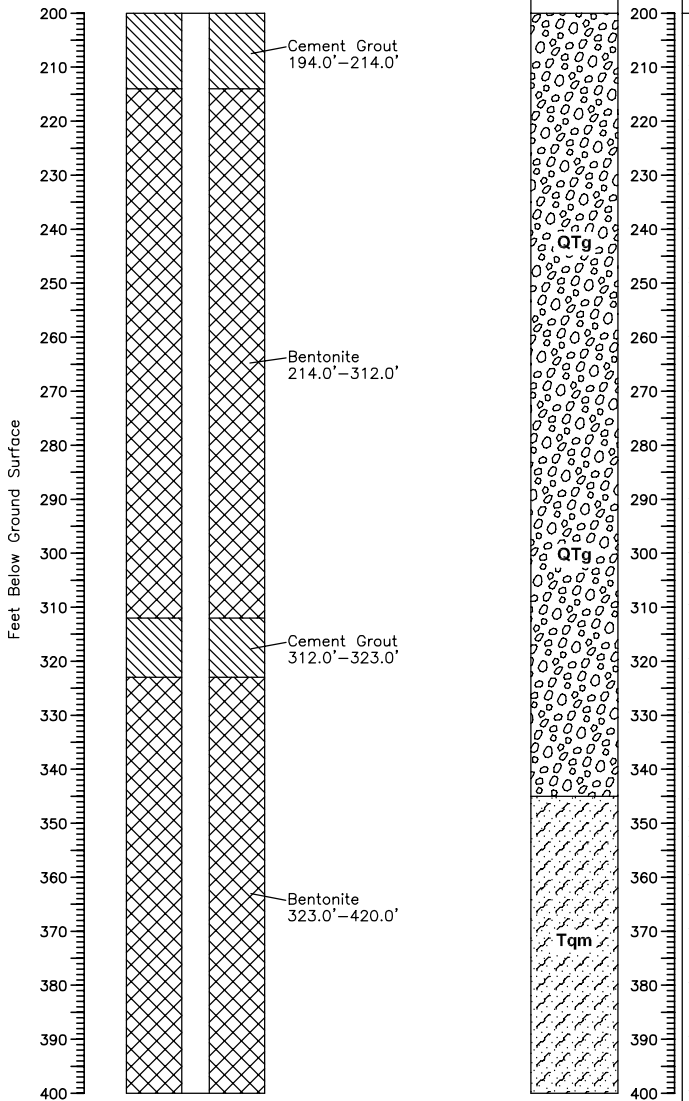

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
209–210	GW	Gravel with sand, reddish brown (5YR 4/4) and white, fine to coarse sand with 60% gravel to 30 mm diameter, both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar, few small dark gray/black fragments.
219–220	SW	Sand with gravel, reddish brown (5YR 4/4) and white, sand with 30% fine gravel to 10 mm diameter, both porphyritic quartz monzonite and granite with phenocrysts of quartz/feldspar, few small dark gray/black fragments.
229–230	GW	Gravel with sand, reddish brown (5YR 4/4), 60% gravel to 30 mm diameter, 10–20% fines (clay/silt fraction), 20–30% coarse sand, quartz, pink and white feldspar, trace biotite, Fe–oxide staining.
239–240	SM	Silty sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, 30% fines (clay/silt fraction), 60% coarse sand and 10% fine gravel fraction, mostly quartz and white/pink feldspar, trace biotite, and Fe–oxide staining, trace dark mineral (possibly hornblende), subrounded, poorly sorted, both granite and quartz monzonite fragments in cuttings.
249–250	SM	Silty sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, 30% fines (clay/silt fraction), 60% coarse sand and 10% fine gravel fraction, mostly quartz and white/pink feldspar, trace biotite, and Fe–oxide staining, trace dark mineral (possibly hornblende), subrounded, poorly sorted, both granite and quartz monzonite fragments in cuttings.
259–260	GW	Gravel with sand, strong brown (7.5YR 4/6) to brown (7.5YR 5/4) and white, 30% fines (clay/silt fraction), 60% coarse sand and 10% fine gravel fraction, gravel to 25 mm diameter, mostly quartz and white/pink feldspar, some white feldspar sericitized, trace biotite, and Fe–oxide staining, trace dark mineral (possibly hornblende), subrounded, poorly sorted, both granite and quartz monzonite fragments in cuttings.
269–270	GW	Gravel with sand, strong brown and white (7.5YR 4/6), 60% gravel to 15 mm diameter with 30% coarse sand and 10% silt/clay, mostly quartz and white/pink feldspar, some white feldspar sericitized, trace biotite, and Fe–oxide staining, trace dark mineral (possibly hornblende), subrounded, poorly sorted, both granite and quartz monzonite fragments in cuttings.
279–280	SW	Sand with gravel, yellowish red (5YR 5/6) and white, medium to coarse sand with 15% silt clay and 35% fine gravel to 10 mm diameter, quartz, pink and white feldspar, sericite, Fe–oxide, trace biotite, dark mineral possibly hornblende, poorly sorted, subrounded.
289–290	SW	Sand with gravel, yellowish red (5YR 5/6) and white, medium to coarse sand with 30% silt clay and 35% fine gravel to 10 mm diameter, quartz, pink and white feldspar, sericite, Fe–oxide, trace biotite, dark mineral possibly hornblende, poorly sorted, subrounded.
299–300	SW	Sand with gravel, yellowish red (5YR 5/6) and white, medium to coarse sand with 30% silt clay and 35% fine gravel to 10 mm diameter, quartz, pink and white feldspar, sericite, Fe–oxide, trace biotite, dark mineral possibly hornblende, poorly sorted, subrounded.
309–310	SW	Sand with gravel, yellowish red (5YR 5/6) and white, medium to coarse sand with 30% silt clay and 35% fine gravel to 10 mm diameter, quartz, pink and white feldspar, sericite, Fe–oxide, trace biotite, dark mineral possibly hornblende, poorly sorted, subrounded.
319–320	GW	Gravel with sand, yellowish red (5YR 5/6) and white, 60% gravel to 15 mm diameter, quartz, pink and white feldspar, sericite, Fe–oxide, trace biotite, dark mineral possibly hornblende, poorly sorted, subrounded.
329–330	SW	Sand with gravel, yellowish red (5YR 5/6) and white, sand with 15% gravel to 15 mm diameter, quartz, pink and white feldspar, sericite, Fe–oxide, trace biotite, dark mineral possibly hornblende, poorly sorted, subrounded.
339–340	SW	Sand with gravel, strong brown (7.5YR 5/6) and white, sand with 15% gravel to 15 mm diameter, quartz, pink and white feldspar, sericite, Fe–oxide, trace biotite, dark mineral possibly hornblende, poorly sorted, subrounded.
345–346	Tqm	Quartz monzonite (?), dusky red (10R 3/4) to brown and white, coarse sand to small gravel–sized rock fragments, 60–70% reddish feldspar, 20% white feldspar, 10% quartz, trace very fine biotite and trace yellowish red clay, silt, and Fe–oxide.
349–350	Tqm	
352–353	Tqm	Quartz monzonite (?), dusky red (10R 3/4) to brown and white, coarse sand to small gravel–sized rock fragments, 60–70% reddish feldspar, 20% white feldspar, 10% quartz, trace very fine biotite and trace yellowish red clay, silt, and Fe–oxide.
359–360	Tqm	Quartz monzonite (?), dusky red (10R 3/4) and brown, 30–40% quartz and 40–50% reddish feldspar, 5% very small biotite, some Fe–oxide staining, rock fragments to 25 mm diameter, trace silt/clay, subangular, some fragments porphyritic, chloritic alteration of ground mass is minor.
369–370	Tqm	Quartz monzonite (?), dusky red (10R 3/4) and brown, 30–40% quartz and 40–50% reddish feldspar, 5% very small biotite, some Fe–oxide staining, rock fragments to 25 mm diameter, trace silt/clay, subangular, some fragments porphyritic, chloritic alteration of ground mass is minor.
379–380	Tqm	Quartz monzonite (?), color range from dusky red to yellowish brown, grayish green and white; pink, white, and clear feldspar, Fe–oxide staining, quartz, yellowish green epidot, trace very fine hornblende and biotite, which is oxidized.
		Quartz monzonite (?), color range from dusky red to yellowish brown, grayish green and white; pink, white, and clear feldspar, Fe–oxide staining, quartz, yellowish green epidot, trace very fine hornblende and biotite which is oxidized.
389–390	Tqm	Quartz monzonite (?), color range from dusky red to yellowish brown, grayish green and white; pink, minor white, and clear feldspar, sericite, Fe–oxide staining, quartz, yellowish green epidot, trace very fine hornblende and biotite which is oxidized.
399–400	Tqm	Quartz monzonite (?), color range from dusky red to yellowish brown, grayish green and white; pink, minor white, and clear feldspar, sericite, Fe–oxide staining, quartz, yellowish green epidot, trace very fine hornblende and biotite which is oxidized, 20% silt/clay fraction (yellowish brown).

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 7–23–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 10543.170
Easting: 23922.410
Elevation: 5991.210

PHELPS DODGE
TYRONE, INC.

Well 896-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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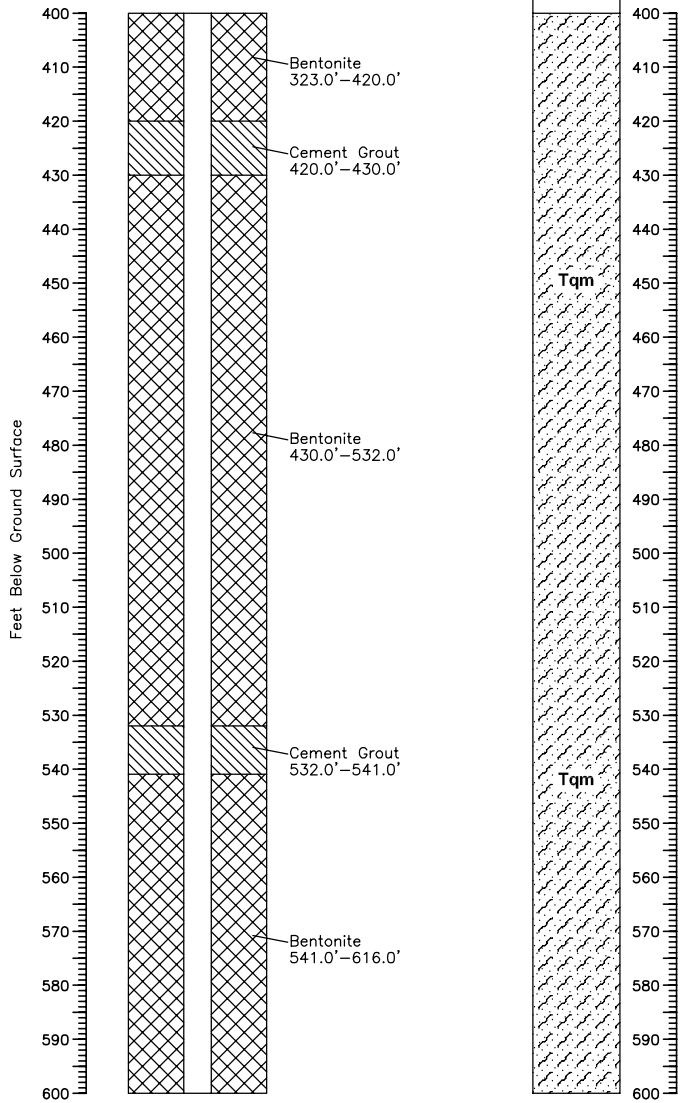

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
409–410	Tqm	Quartz monzonite, dusky red (10R 3/4 wet) to brown and white, rock fragments mostly pink feldspar, quartz, white feldspar/sericite, Fe–oxide, trace biotite and hornblende, 15% silt/clay fraction (yellowish brown), minor alteration through chloritization present.
419–420	Tqm	Quartz monzonite, dusky red (10R 3/4 wet) to brown and white, rock fragments mostly pink feldspar, quartz, white feldspar/sericite, Fe–oxide, trace biotite and hornblende, 5% silt/clay fraction (yellowish brown), minor alteration through chloritization present.
429–430	Tqm	Quartz monzonite, dusky red (10R 3/4 wet) to brown and white, rock fragments mostly pink feldspar, quartz, white feldspar/sericite, Fe–oxide, trace biotite and hornblende, 10% silt/clay fraction (reddish brown), minor alteration through chloritization present.
439–440	Tqm	Quartz monzonite, dusky red (10R 3/4 wet) to brown and white, rock fragments mostly pink feldspar, quartz, white feldspar/sericite, Fe–oxide, trace biotite and hornblende, 10% silt/clay fraction (reddish brown), minor alteration through chloritization present.
449–450	Tqm	Quartz monzonite, dusky red (10R 3/4 wet) to brown and white, rock fragments mostly pink feldspar, quartz, white feldspar/sericite, Fe–oxide, trace biotite and hornblende, 10% silt/clay fraction (brown), minor alteration through chloritization present.
459–460	Tqm	Quartz monzonite, greenish gray (5GY 5/1 wet), dusky red (10R 3/4), mostly red feldspar and quartz in equal amounts, 10–15% silt/clay fraction (reddish brown), trace chrysocolla, 5–10% chlorite, trace Fe–oxide staining (minor), trace sericite.
469–470	Tqm	Quartz monzonite, greenish gray (5GY 5/1 wet), dusky red (10R 3/4), mostly red feldspar and quartz in equal amounts, 10–15% silt/clay fraction (reddish brown), trace chrysocolla, 5–10% chlorite, trace Fe–oxide staining (minor), trace sericite.
479–480	Tqm	Quartz monzonite, greenish gray (5GY 5/1 wet), dusky red (10R 3/4), mostly red feldspar and quartz in equal amounts, 10–15% silt/clay fraction (reddish brown), trace chrysocolla, 5–10% chlorite, trace Fe–oxide staining (minor), trace sericite.
489–490	Tqm	Quartz monzonite, greenish gray (5GY 5/1 wet), dusky red (10R 3/4), mostly red feldspar and quartz in equal amounts, 10–15% silt/clay fraction (reddish brown), trace chrysocolla, 5–10% chlorite, trace Fe–oxide staining (minor), trace sericite.
499–500	Tqm	Quartz monzonite, greenish gray (5GY 5/1 wet), dusky red (10R 3/4), mostly red feldspar and quartz in equal amounts, 10–15% silt/clay fraction (reddish brown), trace chrysocolla, 5–10% chlorite, trace Fe–oxide staining (minor), trace sericite.
509–510	Tqm	Quartz monzonite, pale olive (5Y 6/3) and dusky red (10R 3/4), pink and white feldspar, quartz, trace chrysocolla, trace sericite, trace chloritization of ground mass, very fine biotite/hornblende, Fe–oxide.
519–520	Tqm	Quartz monzonite, pale olive (5Y 6/3) and dusky red (10R 3/4), pink and white feldspar, quartz, trace chrysocolla, trace sericite, trace chloritization of ground mass, very fine biotite/hornblende, Fe–oxide.
529–530	Tqm	Quartz monzonite, pale olive (5Y 6/3) and dusky red (10R 3/4), pink and white feldspar, quartz, 10% silt/clay fraction (brown (7.5YR 5/4)), trace chrysocolla, trace sericite, trace chloritization of ground mass, very fine biotite/hornblende, Fe–oxide.
539–540	Tqm	Quartz monzonite, greenish gray (5GY 5/1) and dusky red (10R 3/4), pink and white feldspar, quartz, 10% silt/clay fraction (brown (7.5YR 5/4)), trace chrysocolla, trace sericite, trace chloritization of ground mass, very fine biotite/hornblende.
549–550	Tqm	Quartz monzonite, dark greenish gray (5GY 3/1 wet) and dusky red (10R 3/4), pink and white feldspar, quartz, 10% silt/clay fraction (brown (7.5YR 5/4)), trace chrysocolla, trace sericite, trace chloritization of ground mass, very fine biotite/hornblende.
559–560	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) and dusky red (10R 3/4), red dominant, pink and white feldspar, quartz, 5–10% silt/clay fraction (brown (7.5YR 5/4)), trace chrysocolla, trace sericite, trace chloritization of ground mass, very fine biotite/hornblende.
569–570	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) and dusky red (10R 3/4), green dominant, average fragment size 2–3 mm diameter, pink and white feldspar, quartz, 5–10% silt/clay fraction (brown (7.5YR 5/4)), trace chrysocolla, trace sericite, trace chloritization of ground mass, very fine biotite/hornblende.
579–580	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) and dusky red (10R 3/4), red and brown dominant, average fragment size 2–3 mm diameter, pink and white feldspar, quartz, 5–10% silt/clay fraction (brown (7.5YR 5/4)), trace chrysocolla, trace sericite, trace chloritization of ground mass, very fine biotite/hornblende.
589–590	Tqm	Quartz monzonite, dusky red (2.5YR 3/3) to brown and some dark greenish gray (5GY 4/1), 5% fines (brown), porphyritic fragments with chloritic alteration, white and pink feldspar fragments, quartz, trace dark mineral (hornblende?), some very fine biotite, minor chrysocolla.
599–600	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) with dusky red and yellowish green, rock fragments <4 mm diameter, mostly silt/fine sand fraction (olive), quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 7–23–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 10543.170
Easting: 23922.410
Elevation: 5991.210

PHELPS DODGE
TYRONE, INC.

Well 896-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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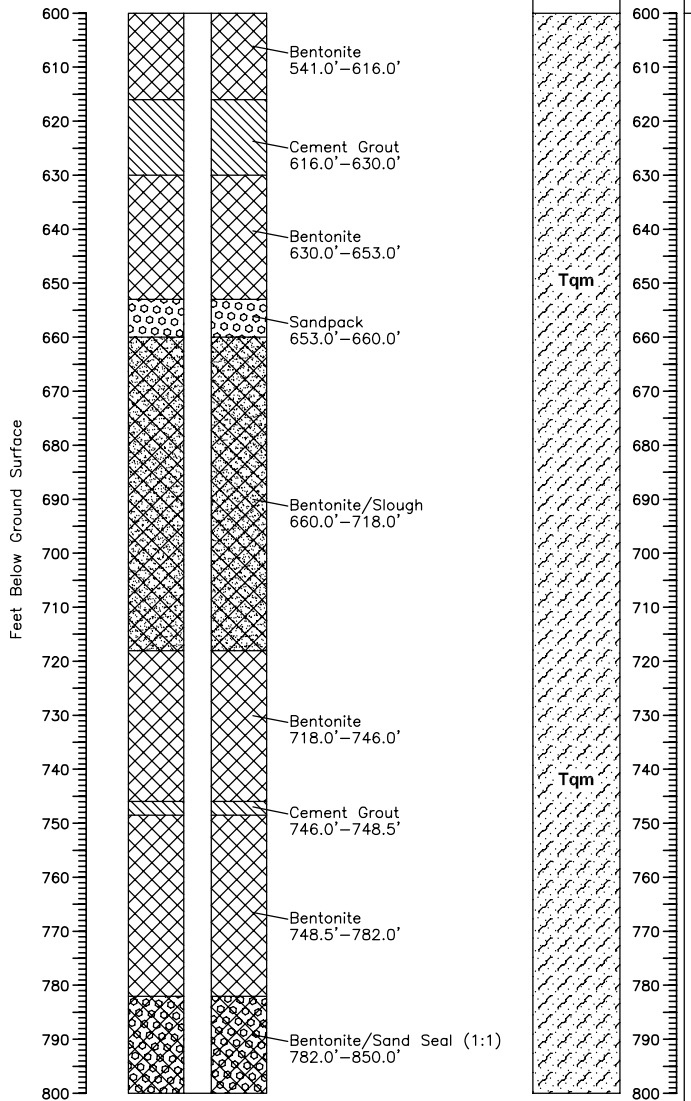

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
608–610	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) with dusky red and yellowish green, rock fragments <4 mm diameter, mostly silt/fine sand fraction (olive), quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
618–620	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) with dusky red and yellowish green, rock fragments <4 mm diameter, mostly silt/fine sand fraction (olive), quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
629–630	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) with dusky red and yellowish green, rock fragments <4 mm diameter, mostly silt/fine sand fraction (olive), quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
638–640	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) with dusky red and yellowish green, rock fragments <4 mm diameter, mostly silt/fine sand fraction (olive), quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
648–650	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) with dusky red and yellowish green, rock fragments <4 mm diameter, mostly silt/fine sand fraction (olive), quartz, pink and some white feldspar, green mineral possibly epidot, increase in Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
658–660	Tqm	Quartz monzonite, dark greenish gray (5GY 4/1 wet) with dusky red and yellowish green, brown more dominant, rock fragments <4 mm diameter, mostly silt/fine sand fraction (olive), quartz, pink and some white feldspar, green mineral possibly epidot, further increase in Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
668–670	Tqm	Quartz monzonite, dusk red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, fragments <2 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
678–680	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, fragments mostly 2–3 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
688–690	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, fragments mostly 2–3 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
698–700	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, fragments mostly 2–3 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
708–710	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, rock fragments to 15 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
718–720	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, rock fragments to 15 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
728–730	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, average fragment 2 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
738–740	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, average fragment 2 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
748–750	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to dark greenish gray (5GY 4/1) and yellowish green, average fragment 2 to 5 mm diameter, quartz, pink and some white feldspar, green mineral possibly epidot, Fe–oxide staining, chloritic alteration of ground mass, white feldspar sericitized, subangular to subrounded, trace of very fine biotite, chrysocolla.
758–760	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to yellowish brown to grayish green and white (all wet), fragments from 1 to 15 mm diameter, quartz, pink feldspar, white feldspar with sericite, Fe–oxide, minor chloritization of ground mass.
768–770	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to yellowish brown to grayish green and white (all wet), fragments from 1 to 15 mm diameter, quartz, pink feldspar, white feldspar with sericite, Fe–oxide, minor chloritization of ground mass.
778–780	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to yellowish brown to grayish green and white (all wet), fragments from 1 to 15 mm diameter, quartz, pink feldspar, white feldspar with sericite, Fe–oxide, minor chloritization of ground mass.
788–790	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to yellowish brown to grayish green and white (all wet), fragments from 1 to 15 mm diameter, quartz, pink feldspar, white feldspar with sericite, Fe–oxide, minor chloritization of ground mass.
798–800	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to yellowish brown to grayish green and white (all wet), larger rock fragments (to 30 mm diameter) indicating fracture zones, quartz, pink feldspar, white feldspar with sericite, Fe–oxide, minor chloritization of ground mass.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 7–23–05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10–5/8", 9–7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11–3/4" borehole

Northing: 10543.170
Easting: 23922.410
Elevation: 5991.210

PHELPS DODGE
TYRONE, INC.

Well 896-2005-01

Daniel B. Stephens & Associates, Inc.
9–20–05
JN LT05_0069

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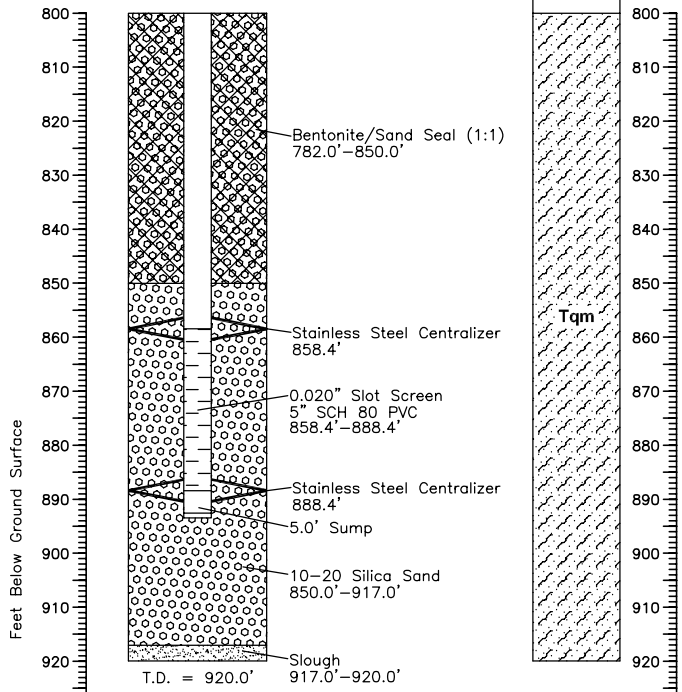

Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
808-810	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to yellowish brown to grayish green and white (all wet), fragments 1-3 mm diameter, quartz, pink feldspar, white feldspar with sericite, Fe-oxide, minor chloritization of ground mass.
818-820	Tqm	Quartz monzonite, dusky red (2.5YR 3/4) to yellowish brown to grayish green and white (all wet), fragments 1-3 mm diameter, quartz, pink feldspar, white feldspar with sericite, Fe-oxide, minor chloritization of ground mass.
828-830	Tqm	Quartz monzonite, color changes from dusky red to mostly dark greenish gray (10BG 4/1), minor dusky red and white, fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, trace Fe-oxide (minor).
835-836	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, trace Fe-oxide (minor).
839-840	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, trace Fe-oxide (minor).
849-850	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, trace Fe-oxide (minor).
859-860	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, trace Fe-oxide (minor).
868-870	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, clay, Fe-oxide yellowish brown.
878-880	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, clay, Fe-oxide brown.
888-892	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, clay, Fe-oxide brown, increase in pink and red feldspar.
898-900	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, clay, Fe-oxide brown, increase in pink and red feldspar.
908-910	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, clay, Fe-oxide brown, increase in pink and red feldspar.
910-917	Tqm	Quartz monzonite, about equal amounts of dusky red and dark greenish gray (10BG 4/1), fragments 1 to 3 mm diameter, very small biotite appears fresh, pyrite, trace sericite, chloritization of ground mass, clay, Fe-oxide brown, increase in pink and red feldspar.

Geologist: L. Rought
Driller: WDC Exploration
Date completed: 7-23-05

Drilling method: Air Rotary with Fluid Assistance
Bit diameters: 10-5/8", 9-7/8" O.D.
Sampling device: Cuttings
Steel surface casing: Casing advanced to the extent of the 11-3/4" borehole

Northing: 10543.170
Easting: 23922.410
Elevation: 5991.210

PHELPS DODGE
TYRONE, INC.

Well 896-2005-01

Daniel B. Stephens & Associates, Inc.
9-20-05
JN LT05_0069

Soil Boring Logs

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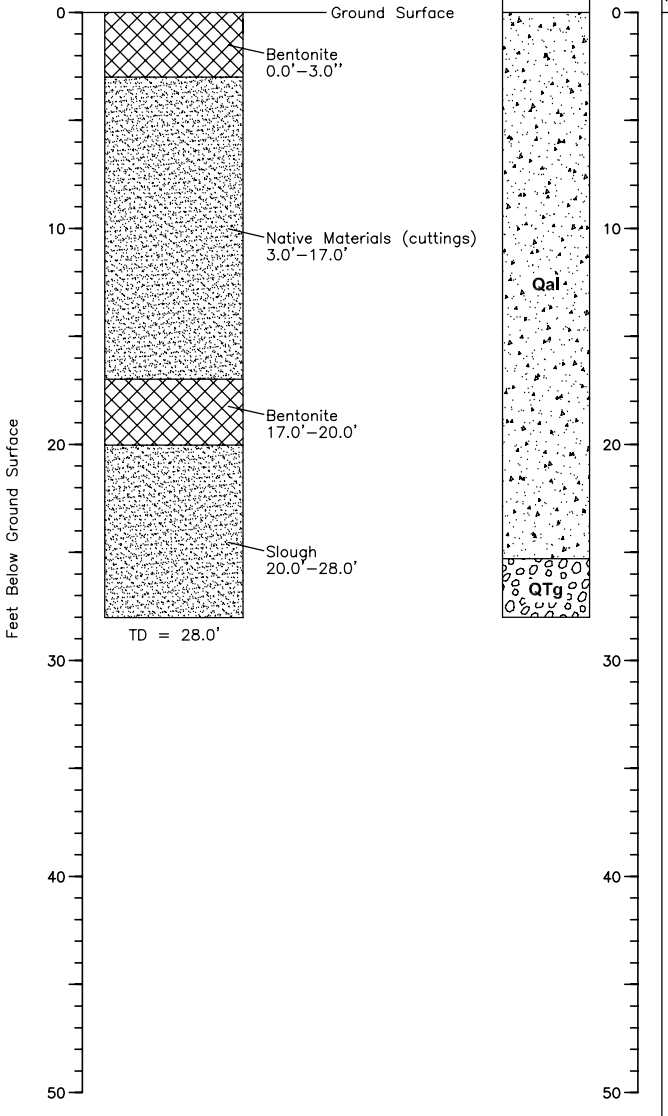

Paste pH (std units)	Paste EC (µs/cm)	Sampling Device	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
–	–	Cuttings	3–5	SW	Sand, yellowish red (5YR 4/6), fine to coarse sand with trace clay/silt and 5% fine gravel, poorly sorted, soft consistency, moist.
4.21 6.73	790 93	CMS	5–6.5 5–8	SW	Sand, yellowish red (5YR 4/6), fine to coarse sand with trace clay/silt and 5% fine gravel, rock fragments to 25 mm diameter, poorly sorted, soft consistency, moist.
		CMS	10–11.5	SW	Sand, strong brown (7.5YR 5/6), very fine to coarse sand, 5% fine gravel, trace silt/clay poorly sorted, firm consistency, subangular, very moist, mostly quartz, trace biotite, Fe–oxide and white feldspar, at 11 feet a 5 cm thick layer of silt and fine sand with trace of coarse sand, below the sand has 10
5.29	23		12–14		
–	–	CMS	15–16.5	SW	Sand, strong brown (7.5YR 5/6), graded from silty sand at top to mostly coarse sand with increasing depth, top moist, saturated at bottom of sample, at 15.5 feet to 15.7 feet large quartz monzonite rock fragment, at 15.7 feet 0.3–foot layer of coarse sand.
4.12	580		16–18		
–	–	CMS	20–21.5	SM/SC	Silty, clayey sand, strong brown (7.5YR 5/6), very fine to coarse sand, 15% clay, 15% silt, low plasticity, firm consistency, 10% fine gravel, 1 large rock fragment, mostly quartz, Fe–oxide is abundant in orange/yellow/brown colors, sample very moist to wet, at 21 feet small aggregates of white clay and greenish mineral (possibly chlorite).
4.05	820		22–25		
4.05	990	CMS & Cuttings	25–28	SW	Sand, fine to coarse sand, poorly sorted, wet to saturated, at 25.8 feet sand with gravel, very fine to coarse sand with gravel, poorly sorted, firm to hard, moist to wet.

Geologist: L. Rought
Driller: Badger Western
Date completed: 8–19–05

Drilling method: Hollow Stem Auger
Auger diameters: 4–1/4" I.D., 8" O.D.
California Modified Sampler (CMS): 2–1/2" dia., 18" long
Drill bits: Large spade or rock (bullet) bit

PHELPS DODGE
TYRONE, INC.

Soil Boring 363-2005-B1

Daniel B. Stephens & Associates, Inc.
4–23–07
JN LT05_0237

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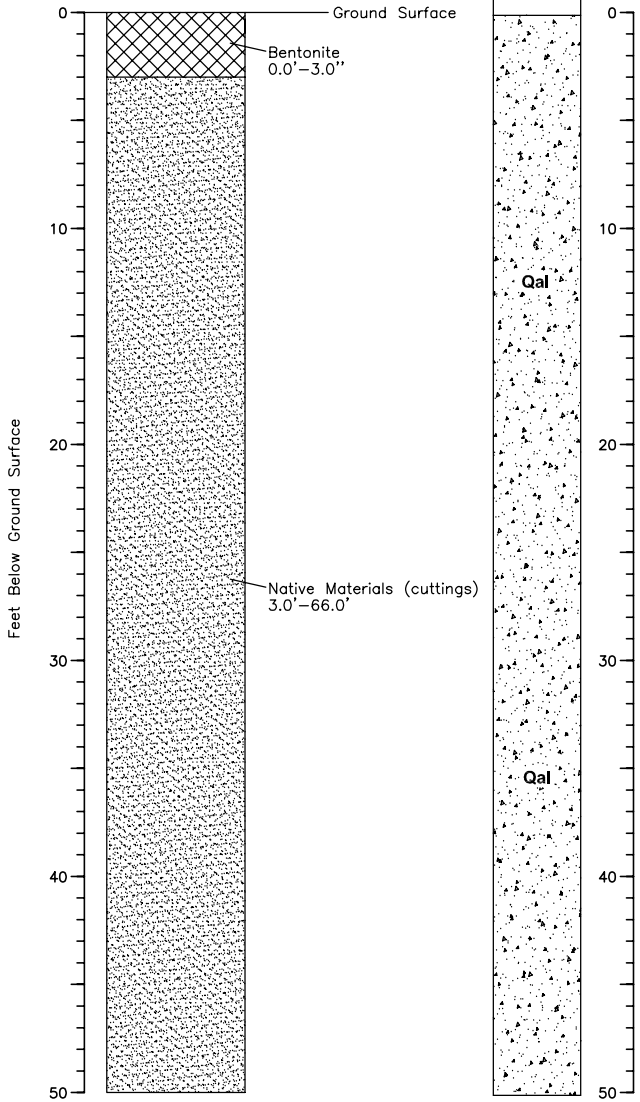

Graphic Log	Paste pH (std units)	Paste EC (µs/cm)	Sampling Device	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
	5.92	38	Cuttings	0–5	SP–SM /SC	Sand with silt and clay, brown (7.5YR 5/4), very fine to fine sand with minor medium sand and 10% each of silt and clay, 5–10 % rock fragments, well sorted, soft consistency, moist.
	7.95	88	Cuttings	5–10	SP–SM /SC	Sand with silt and clay, brown (7.5YR 5/4), very fine to fine sand with minor medium sand and 10% each of silt and clay, 5–10 % rock fragments, well sorted, soft consistency, moist.
	8.28	139	Cuttings	10–15	SP–SM /SC	Sand with silt and clay, brown (7.5YR 5/4), very fine to fine sand with minor medium sand and 10% each of silt and clay, 5–10 % rock fragments, well sorted, soft consistency, moist.
	8.71	78	Cuttings	15–20	SP–SM /SC	Sand with silt and clay, strong brown (7.5YR 4/6), very fine to fine sand with minor medium sand and 10% each of silt and clay, 5–10 % rock fragments, well sorted, soft consistency, very moist.
	8.47	75	Cuttings	20–25	SW	Sand, dark brown (7.5YR 3/4), very fine to coarse sand, 5–10% silt/clay, 5–10% fine gravel to 15 mm diameter, subrounded, very moist.
	8.18	62	Cuttings	25–30	SW	Sand, dark brown (7.5YR 3/4), very fine to coarse sand, 5–10% silt/clay, 15 % fine gravel to 15 mm diameter, subrounded, very moist.
	8.24	101	CMS	30–31.5 30–35	SW	Sand, strong brown (7.5YR 5/6), very fine to coarse sand with 10–15% fine gravel to 10 mm diameter, trace clay/silt, subangular, poorly sorted, soft to firm consistency, moist. At 30.7 to 30.9 feet layers of fine and coarse sand, at 30.9 to 31.5 feet layers of medium to fine sand with silty sands at bottom, layering indicated by lenses of black precipitates with firm to hard consistency, moist, color reddish yellow at bottom.
	8.03	130	Cuttings	35–40	SM	Silty sand, brown (7.5YR 5/3), very fine to coarse sand with 15–20% silt and clay, 10% fine gravel, poorly sorted, subrounded to subangular, moist.
	8.06	82	Cuttings	40–45	SM/SC	Silty, clayey sand, brown (7.5YR 4/4), mostly fine to medium sand with 20–25% silt and clay, poorly sorted, trace fine gravel, very moist.
	7.96	78	Cuttings	45–50	SM/SC	Silty, clayey sand with gravel, brown (7.5YR 4/4), mostly fine to medium sand with 20–25% silt and clay, poorly sorted, 15–20 % gravel to 30 mm diameter, moist.

Geologist: L. Rought
Driller: Badger Western
Date completed: 8–19–05

Drilling method: Hollow Stem Auger
Auger diameters: 4–1/4" I.D., 8" O.D.
California Modified Sampler (CMS): 2–1/2" dia., 18" long
Drill bits: Large spade or rock (bullet) bit

PHELPS DODGE
TYRONE, INC.

Soil Boring 363-2005-B2

Daniel B. Stephens & Associates, Inc.
4–23–07
JN LT05_0237

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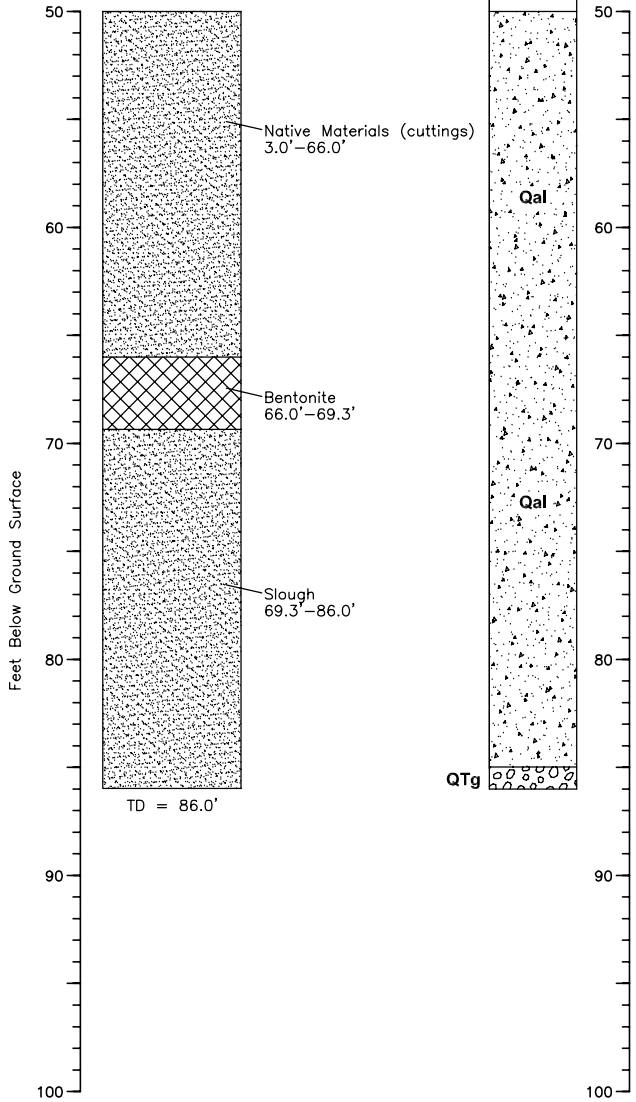

Paste pH (std units)	Paste EC (µs/cm)	Sampling Device	Sample Interval (feet bgs)	USCS Symbol or Rock Unit	Comments and Lithology
8.19	79	Cuttings	50–55	SM/SC	Silty, clayey sand with gravel, brown (7.5YR 4/4), mostly fine to medium sand with 20–25% silt and clay, poorly sorted, 15–20% gravel to 40 mm diameter, moist.
7.00	121	Cuttings	55–60	GW	Gravel with sand, brown (7.5YR 4/4), gravel to 35 mm diameter, 20 % fine to coarse sand, trace clay, gravel with quartz, white feldspar, oxidized biotite (monzonite), irregular change from gravel to sand layers, very moist.
3.90	352	Split-Spoon	60–61.5	GW	Sand with gravel, strong brown (7.5YR 5/6 to 4/6), fine to coarse sand with 25–30% gravel and cobble fragments in irregular layers (consist mostly of quartz with some biotite and feldspar), sediments mostly quartz, Fe-oxide is yellow/orange/brown, very small needles probably crystals of gypsum (clear), biotite, subangular, poorly sorted, firm to hard, very moist, black precipitation along grain boundaries.
5.09	410	Split-Spoon	65–66.5 65–70	SW	Sand with gravel, strong brown (7.5YR 5/6 to 4/6), fine to coarse sand with 25–30% gravel and cobble fragments in irregular layers (consist mostly of quartz with some biotite and feldspar), sediments mostly quartz, Fe-oxide is yellow/orange/brown, very small needles probably crystals of gypsum (clear), biotite, subangular, poorly sorted, firm to hard, very moist, black precipitation along grain boundaries.
4.52	423	Split-Spoon	70–71.5 70–75	SW	Sand with gravel, strong brown (7.5YR 4/6 to 5/6), mostly medium and coarse sand with 15–20% gravel, subangular, poorly sorted, needle-like (gypsum?) crystals more abundant, black precipitation, grains abundant, firm to hard, Fe-oxide abundant, trace clay/silt, very moist to wet.
4.56	510	Split-Spoon	75–76.5 75–80	SW	Sand with gravel, strong brown (7.5YR 4/6 to 5/6) with yellow, red, orange staining (Fe-oxide), chloritic/green aggregates, poorly sorted, very moist to wet, large rock fragments with quartz, feldspar, oxidized biotite (monzonite).
3.75	620	Split-Spoon	80–81.5	SW	Sand with gravel, strong brown (7.5YR 5/6), very fine to coarse sand with 35–40% gravel, trace silt/clay, very firm to hard, moist.
–	–	Split-Spoon	85–86	SW	Sand with gravel, brown (7.5YR 5/4) to light brown (7.5YR 6/4), very fine to coarse sand with gravel and rock fragments which are quartz-rich, very hard to hard, poorly sorted, very moist to moist at bottom. At 85 feet, Gila Conglomerate.

Geologist: L. Rought
Driller: Badger Western
Date completed: 8-19-05

Drilling method: Hollow Stem Auger
Auger diameters: 4-1/4" I.D., 8" O.D.
California Modified Sampler (CMS): 2-1/2" dia., 18" long
Drill bits: Large spade or rock (bullet) bit

PHELPS DODGE
TYRONE, INC.

Soil Boring 363-2005-B2

Daniel B. Stephens & Associates, Inc.
4-23-07
JN LT05_0237

Additional
DP-363 and DP-396
Well Logs

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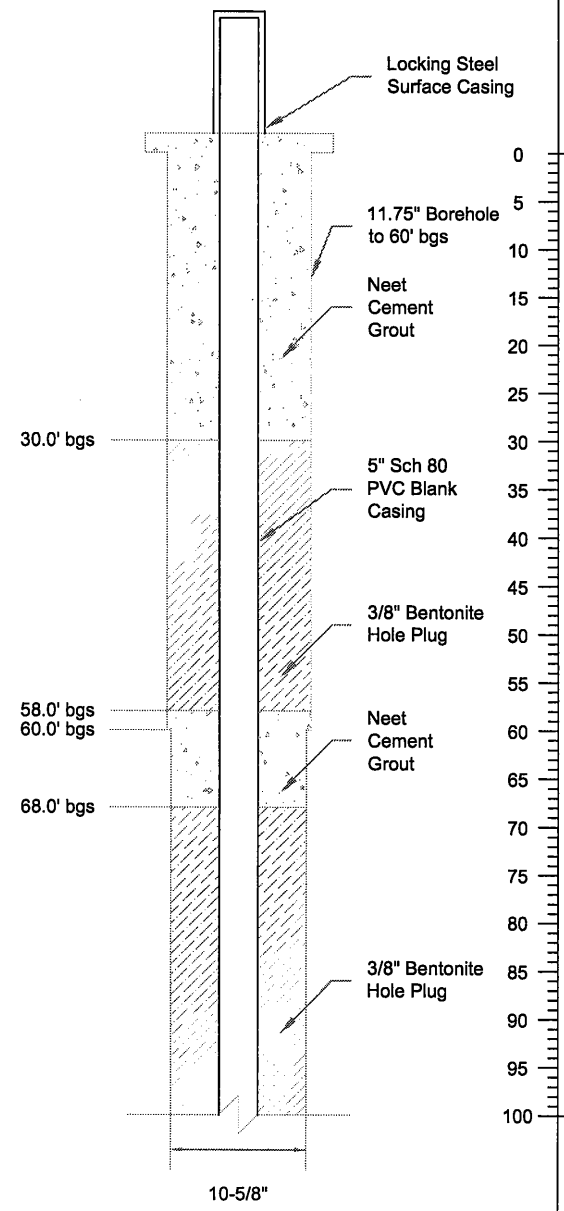

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	Qal		0–5	SOIL, SILTY SANDY LOAM, 80% SAND, 20% FINES, BROWN (10YR 4/3), SOFT, LOW PLASTICITY FRIABLE, RED, SLIGHTLY MOIST, PH 8.0
			5–10	SAND, SILTY, GRAVELLY, 5% GRAVEL, 75% SAND, 20% FINES, YELLOWISH RED (5YR 5/6), SOFT, LIGHTLY PLASTIC, PH 7.5
			10–15	
			15–20	GILA, SAND, SLITY, GRAVELLY, 10% GRAVEL, 70% SAND, 20% FINES, STRONG BROWN (7.5YR 5/6), FIRM, NON-PLASTIC, PH 7.0
		SP/SM	20–25	
			25–30	
			30–35	DRILLING SLOWER
			35–40	SAND, SILTY, MOIST, 70% SAND, 30% FINES, STRONG BROWN (7.5YR 5/8), FIRM, MODERATELY PLASTIC, PH 6.5
			40–45	
			45–50	
		GM	50–55	SAND, GRAVELY, SILTY, 40% GRAVEL, 40% SAND, 20% FINES, HARD, NON-PLASTIC, PH 7.0
	Qtg		55–60	
			60–65	TEMPORARY DRIVE CASING SET AT 60.0', 11-3/4 O.D.
		SP	65–70	GRAVELY SILTY SAND, 40% GRAVEL, 40% SAND, 20% FINES, YELLOWISH BROWN (10YR 5/4), FIRM, NON-PLASTIC, ANGULAR TO SUBANGULAR GRAVELS, SLIGHT HCL REACTION, PH 7.0
			70–75	SILTY GRAVELLY SAND, 20% GRAVEL, 40% SAND, 40% FINES, LIGHT BROWN (7.5YR 6/4), HARD, NON-PLASTIC, ANGULAR TO SUBANGULAR GRAVELS, PH 7.0
		GM	75–80	
			80–85	HARDER / SLOWER DRILLING, MORE GRAVELY WITH CLAY CHUNKS, 50% GRAVEL, 30% SAND, 20% FINES, LIGHT YELLOWISH BROWN (10YR 6/4), HARD, NON-PLASTIC, PH <4.0
			85–90	
		GM/GP	90–95	HARDER / SLOWER DRILLING GRAVELLY SILTY SAND, QUARTZ FELDSPAR, OCCASIONAL IGNEOUS CLASTS WITH CEMENTATION, MORE CLAY, 40% GRAVEL, 40% SAND, 20% FINES, LIGHT YELLOWISH BROWN (10YR 6/4), HARD, NON-PLASTIC, ANGULAR TO SUB ANGULAR, SLIGHT HCL REACTION, PH <4.0
			95–100	

Northing: 5437.60
Easting: 19337.04
Top of Casing Elevation: 6002.18

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. ((Peralta, NM))
Drilling Rig/Bit:	Stratex - Air Rotary 11.75" Tri-Cone bit to 60' bgs, 10-5/8" Tri-Cone bit 60' to 534' bgs
Driller:	Juan Aguilar
Start Date	11/30/06
Completion Date	12/05/06
Boring Depth:	534.0 feet below ground surface
Water Level:	502.5' bgs (1/10/07)
Logged by:	Steven Schindler

1C STOCKPILE (DP-363)
TYRONE, NEW MEXICO

BORING LOG 363-2006-01
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ALBUQUERQUE, NEW MEXICO

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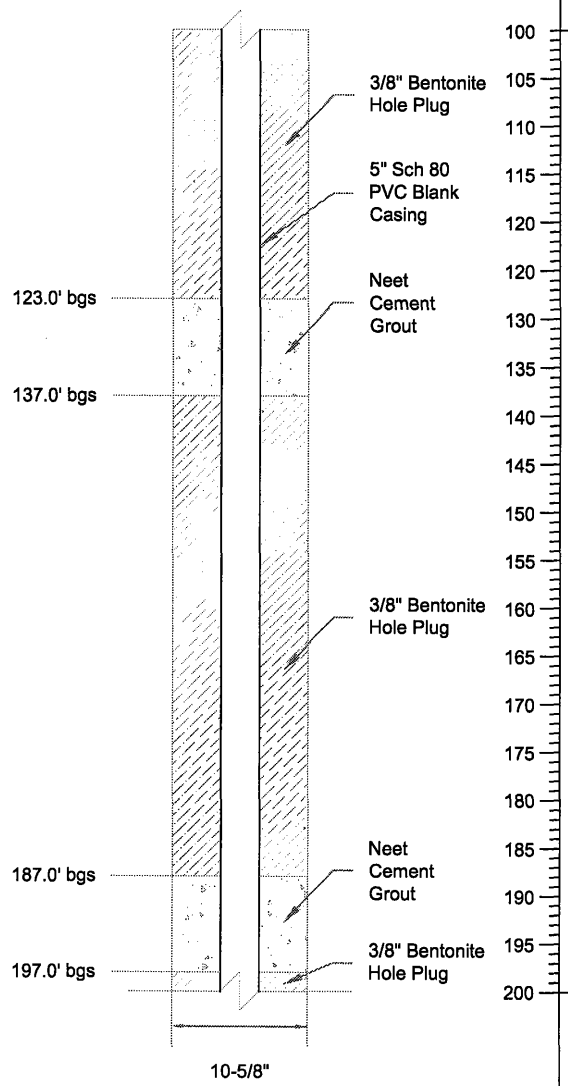

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	QTg	GM/GP	105–115	SILTY GRAVELLY SAND, 30% GRAVEL, 40% SAND, 30% FINES, STRONG BROWN (7.5YR 5/6), HARD, NON-PLASTIC, ANGULAR TO SUB ANGULAR GRAVEL, MORE CLAY, PH 7.0
			115–120	SILTY GRAVELLY SAND, 30% GRAVEL, 40% SAND, 30% FINES, STRONG BROWN (7.5YR 5/6), HARD, NON-PLASTIC, ANGULAR TO SUB ANGULAR GRAVELS, SLIGHT HCL REACTION, PH 7.0
			120–130	GRAVEL, SANDY, SILTY, 40% GRAVEL, 40% SAND, 20% FINES, PH 7.0
		GM	130–135	USING WATER FOR BIT BALLING, SAMPLES MOIST DUE TO WATER USED. 40% GRAVEL, 40% SAND, 20% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 7.0
		GP	135–150	SANDY SILTY GRAVEL, MORE SAND AND FINE GRAVELS, SILT AND CLAYS ARE SATURATED USING WATER, 30% GRAVEL, 40% SAND, 30% FINES, LIGHT YELLOWISH BROWN (10YR 6/4), HARD, NON-PLASTIC, SUBANGULAR TO ANGULAR, TRACE SUBROUNDED, TRACE HCL REACTION, PH 7.0
			150–160	GRAVELLY SILTY SAND, MORE MEDIUM TO COURSE GRAVELS, 50% GRAVEL, 30% SAND, 20% FINES, LIGHT YELLOWISH BROWN (10YR 6/4), HARD, NON-PLASTIC, ANGULAR, PH 7.5
		GM	160–165	GRAVELLY SILTY SAND, MORE MEDIUM TO COURSE GRAVELS, 50% GRAVEL, 30% SAND, 20% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, ANGULAR, PH 8.5
			165–170	GRAVELLY SILTY SAND, 40% GRAVEL, 40% SAND, 20% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, ANGULAR TO SUBANGULAR FRAGMENTS MORE FINE GRAVELS AND SAND, PH 7.5
		GP/GM	170–180	SILTY GRAVELLY IGNEOUS CLAST, SAND, 40% GRAVEL, 40% SAND, 20% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, ANGULAR TO SUB ANGULAR FRAGMENTS, PH 7.5
			180–190	SANDY SILTY GRAVEL, 30% GRAVEL, 50% SAND, 20% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, ANGULAR TO SUBANGULAR, IGNEOUS FRAGMENTS, PH 7.0
		GM	190–200	SANDY SILTY GRAVEL, 30% GRAVEL, 40% SAND, 30% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, ANGULAR TO SUBANGULAR, IGNEOUS CLASTS, PH 7.5

Northing: 5437.60
Easting: 19337.04
Top of Casing Elevation: 6002.18

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 11.75" Tri-Cone bit to 60' bgs, 10-5/8" Tri-Core bit 60' to 534' bgs
Driller:	Juan Aguilar
Start Date	11/30/06
Completion Date	12/05/06
Boring Depth:	534.0 feet below ground surface
Water Level:	502.5' bgs (1/10/07)
Logged by:	Steven Schindler

1C STOCKPILE (DP-363)
TYRONE, NEW MEXICO

BORING LOG 363-2006-01
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ALBUQUERQUE, NEW MEXICO

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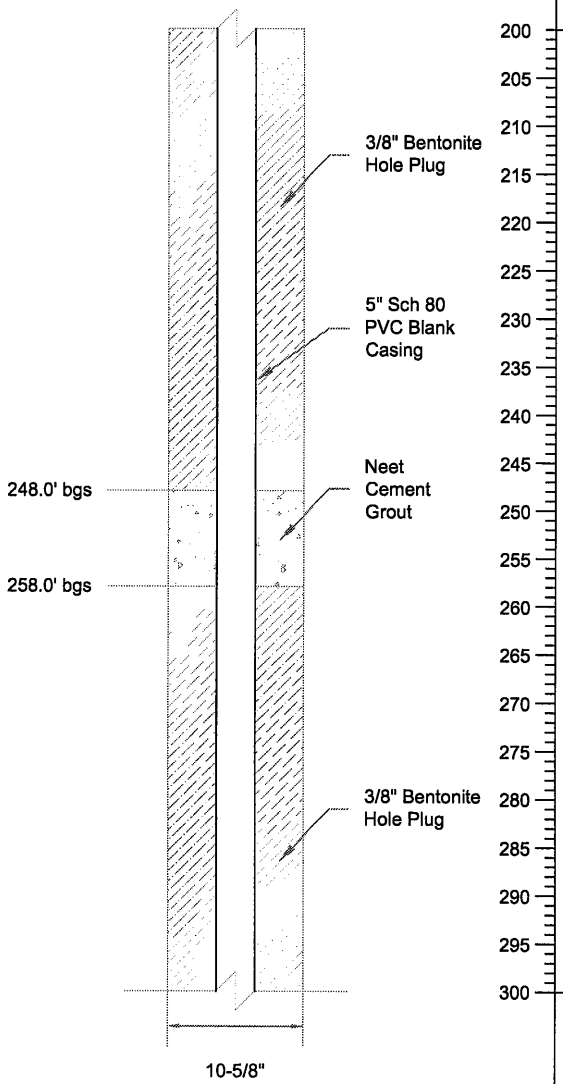

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	QTg	GM	205–210	SILTY SANDY GRAVEL, FINE TO MEDIUM GRAVEL, 40% GRAVEL, 40% SAND, 20% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, ANGULAR TO SUB ANGULAR, SLOW / HARD DRILLING, PH 7.5
		SM	215–220	GRAVELLY, SILTY SAND, 30% GRAVEL, 50% SAND, 20% FINES, PALE BROWN (10YR 6/3), HARD, NON-PLASTIC, PH 7.5
		GP	225–230	SANDY GRAVEL WITH SILT, 50% GRAVEL, 40% SAND, 10% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, ANGULAR TO SUB ANGULAR FRAGMENTS, FINE TO MEDIUM ANGULAR GRAVEL, LESS FINES, TRACE HCL REACTION, PH 7.5
		GM	235–240	SANDY SILTY GRAVEL, FINES LESS, 50% GRAVEL, 30% SAND, 20% FINES, HARD, NON-PLASTIC, PH 7.5
			245	EASIER DRILLING
			250	SILTY GRAVELLY SAND, 40% GRAVEL, 40% SAND, 20% FINES, HARD, NON-PLASTIC, HARD SLOW DRILLING AT 250', PH 7.5
			255	SILTY SANDY GRAVEL, 40% GRAVEL, 45% SAND, 15% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, MORE FINES AND SANDS / SILTS, PH 8.0
				VERY HARD / SLOW DRILLING (6 INCHES / 10 MINUTES)
		GP	260–270	COURSE GRAVELS WITH BOULDER / COBBLES OF GRANITE OR MONZONITE, 70% GRAVEL, 20% SAND, 10% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, PH 8.0, LOW AMOUNT OF SILT 268' INSPECT BIT, OUT OF GAUGE, 10-5/8" MILL TOOTH BIT REPLACED WITH 10-5/8" PERCUSSION BIT, 80% GRAVEL, 20% SAND
			280	SANDY GRAVEL, 60% GRAVEL, 30% SAND, 10% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, FINE GRAINED CLASTS (CHIPPED), WITH LOW AMOUNTS OF SILTS AND FINES, GRANITE QUARTZ MONZONITE SILT GRAVELS, ANGULAR TO SUB ANGULAR, PH 8.0
		GM	285–290	SANDY SILTY GRAVEL, 45% GRAVEL, 40% SAND, 15% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 8.0
		GC	295–300	AS ABOVE WITH MORE FINES (SILTS AND CLAYS) PRESENT, 40% GRAVEL, 40% SAND, 20% FINES, HARD, NON-PLASTIC, NO HCL RXN,PH 7.5

Northing: 5437.60
Easting: 19337.04
Top of Casing Elevation: 6002.18

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 11.75" Tri-Cone bit to 60' bgs, 10-5/8" Tri-Cone bit 60' to 534' bgs
Driller:	Juan Aguilar
Start Date	11/30/06
Completion Date	12/05/06
Boring Depth:	534.0 feet below ground surface
Water Level:	502.5' bgs (1/10/07)
Logged by:	Steven Schindler

1C STOCKPILE (DP-363)
TYRONE, NEW MEXICO

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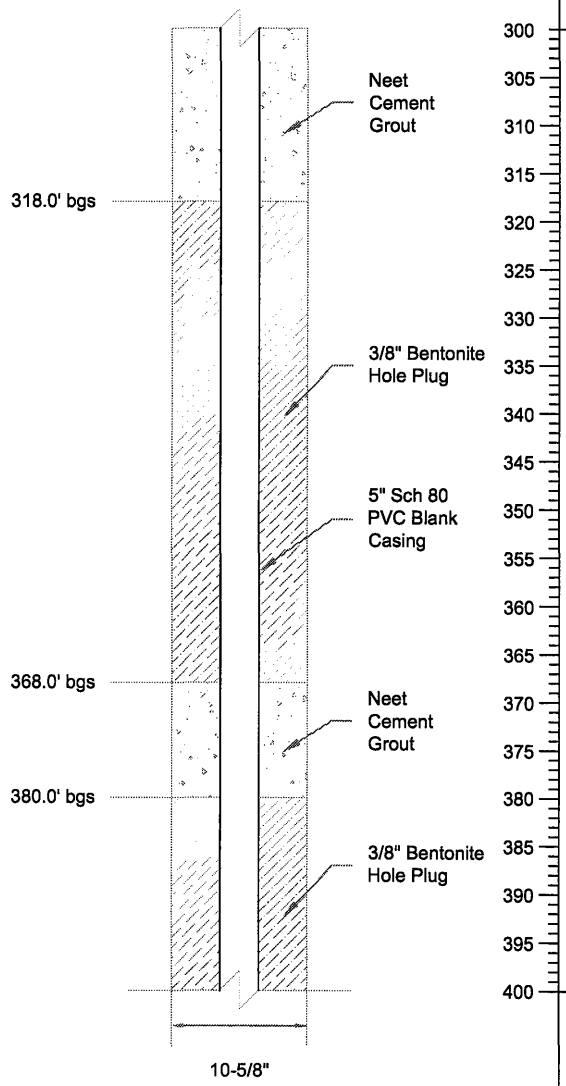

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	QTg	GC	305	
			310	SANDY SILTY GRAVELLY, 40% GRAVEL, 30% SAND, 30% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, ANGULAR TO SUB ANGULAR, CLASTS OF GRANITE, QUARTZ MONZONITE, PH 7.0
			315	
			320	AS ABOVE WITH MORE FINE GRAVEL, 40% GRAVEL, 40% SAND, 20% FINES, YELLOWISH BROWN (10YR 5/6), HARD, NON-PLASTIC, PH 7.0
			325	MORE COARSE GRAINED CLASTS / GRAVELS, COBBLES AND BOULDERS, 50% GRAVEL, 30% SAND, 20% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, PH 8.0
			330	
			335	
			340	MORE FINE GRAINED SILTS AND SANDS, 40% GRAVEL, 40% SAND, 20% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, PH 7.0
			345	
			350	SANDY SILTY GRAVEL, 40% GRAVEL, 40% SAND, 20% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, SUBANGULAR, MORE SILT, CLASTS OF GRANITE, QUARTZ MONZONITE, PH 7.5
			355	
			360	AS ABOVE, 50% GRAVEL, 40% SAND, 10% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 7.5
		GM/GP	365	
			370	AS ABOVE WITH MORE COARSE GRAVELS, 50% GRAVEL, 40% SAND, 10% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 7.5
			375	SLOWER DRILLING
		GP	380	SANDY GRAVEL, 70% GRAVEL, 20% SAND, 10% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, QUARTZ MONZONITE / CLASTS, PH 8.0
			385	GRAVELLY SILTY SAND, 30% GRAVEL, 50% SAND, 20% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 7.5, QUARTZ / FELDSPAR
		SP/SM	390	
			395	
			400	GRAVELLY SILTY SAND, 30% GRAVEL, 40% SAND, 30% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, PREDOMINANTLY QUARTZ / FELDSPAR CLASTS, PH 7.0

Northing: 5437.60
Easting: 19337.04
Top of Casing Elevation: 6002.18

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 11.75" Tri-Cone bit to 60' bgs, 10-5/8" Tri-Cone bit 60' to 534' bgs
Driller:	Juan Aguilar
Start Date	11/30/06
Completion Date	12/05/06
Boring Depth:	534.0 feet below ground surface
Water Level:	502.5' bgs (1/10/07)
Logged by:	Steven Schindler

1C STOCKPILE (DP-363)
TYRONE, NEW MEXICO

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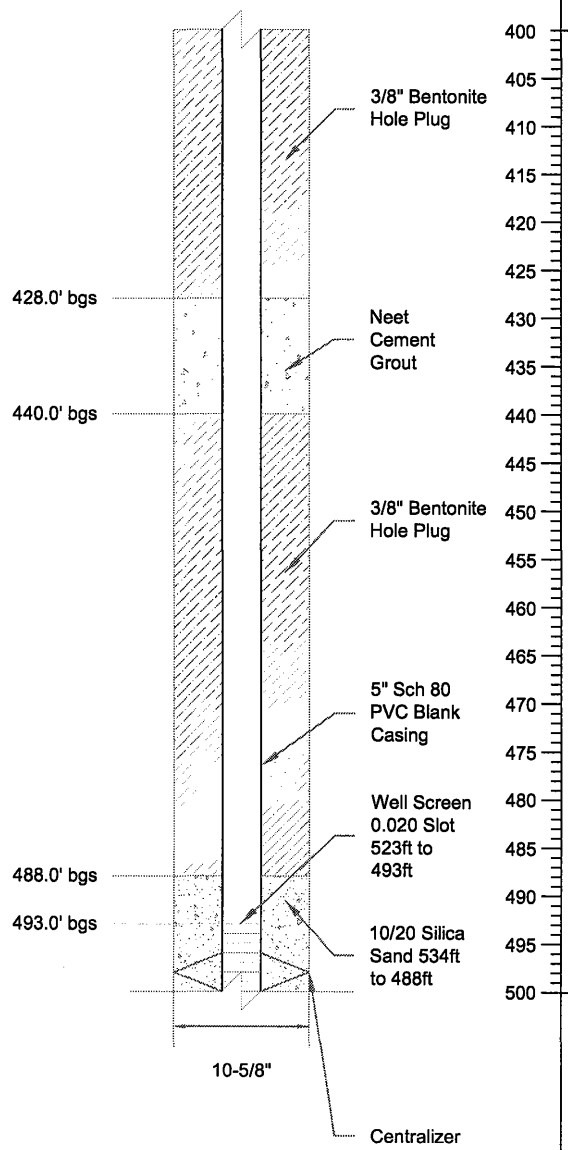

Northing: 5437.60
Easting: 19337.04
Top of Casing Elevation: 6002.18

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	QTg	SM	405	SILTY GRAVELLY SAND, 20% GRAVEL, 40% SAND, 40% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, QUARTZ / FELDSPAR CLASTS, PH 7.5
			410	SILTY GRAVELLY SAND, AS ABOVE, 30% GRAVEL, 40% SAND, 30% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 7.5
			420	SILTY GRAVELLY SAND, 20% GRAVEL, 40% SAND, 40% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, ANGULAR TO SUB ANGULAR, VARIOUS IGNEOUS LITHOLOGIES, PH 7.5
		GM	430	SILTY SANDY GRAVEL, 40% GRAVEL, 40% SAND, 20% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, ANGULAR TO SUBANGULAR, GRAVEL OF QUARTZ MONZONITE AND QUARTZ, PH 7.5
		SP/SM	440	SILTY GRAVELLY SAND, 30% GRAVEL, 40% SAND, 30% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 7.5
			450	GRAVELLY SILTY SAND, 40% GRAVEL, 40% SAND, 20% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, ANGULAR TO SUBANGULAR, PH 8.0
		SM	460	SILTY SAND, MINNOR GRAVEL, 10% GRAVEL, 60% SAND, 30% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 7.5
			470	SILTY GRAVELLY SAND, 10% GRAVEL, 40% SAND, 40% FINES, YELLOWISH BROWN (10YR 5/4), FIRM, NON-PLASTIC, PH 7.0,
			480	SILTY GRAVELLY SAND, 15% GRAVEL, 40% SAND, 35% FINES, YELLOWISH BROWN (10YR 5/4), FIRM, NON-PLASTIC, PH 7.5
			490	SILTY GRAVELLY SAND, 20% GRAVEL, 40% SAND, 40% FINES, YELLOWISH BROWN (10YR 5/4), HARD, NON-PLASTIC, PH 7.5
			495	COARSE SUBROUNDED GRAVELS AT 495'-505'
		GM	500	GRAVELLY SILTY SAND, FINE, 25% GRAVEL, 40% SAND, 35% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, ANGULAR TO SUBANGULAR, PH 7.5

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 11.75" Tri-Cone bit to 60' bgs, 10-5/8" Tri-Cone bit 60' to 534' bgs
Driller:	Juan Aguilar
Start Date	11/30/06
Completion Date	12/05/06
Boring Depth:	534.0 feet below ground surface
Water Level:	502.5' bgs (1/10/07)
Logged by:	Steven Schindler

1C STOCKPILE (DP-363)
TYRONE, NEW MEXICO

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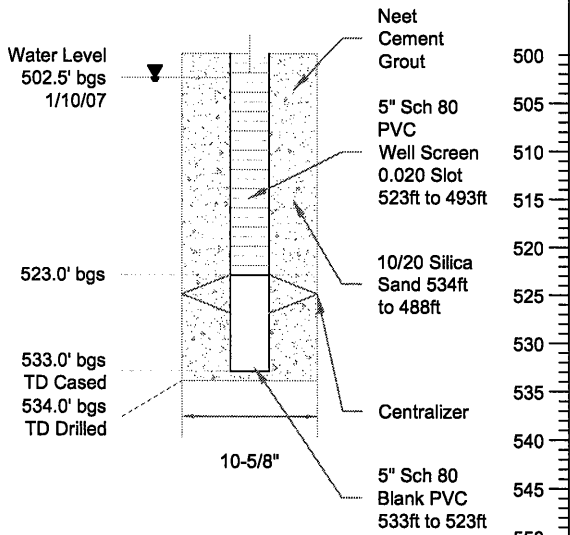

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	QTg	GM	505	GRAVELLY SILTY SAND, 35% GRAVEL, 40% SAND, 25% FINES, BROWN (10YR 5/3), HARD, NON-PLASTIC, SUBANGULAR TO SUBROUNDED, COARSE GRAVELS 1/2" TO 1-1/2" IN SIZE, PH 8.0
		SM	510	
	Tki	BEDROCK	515	SLOW DRILLING 510FT TO 533FT
			520	QUARTZ MONZONITE, GREY TO GREY PINK TO RED PINK, HARD, OCCASIONAL IRON STAINING, PH8.0

Northing: 5437.60
Easting: 19337.04
Top of Casing Elevation: 6002.18

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 11.75" Tri-Cone bit to 60' bgs, 10-5/8" Tri-Core bit 60' to 534' bgs
Driller:	Juan Aguilar
Start Date	11/30/06
Completion Date	12/05/06
Boring Depth:	534.0 feet below ground surface
Water Level:	502.5' bgs (1/10/07)
Logged by:	Steven Schindler

1C STOCKPILE (DP-363)
TYRONE, NEW MEXICO

BORING LOG 363-2006-01
(REPLACES MB-30)
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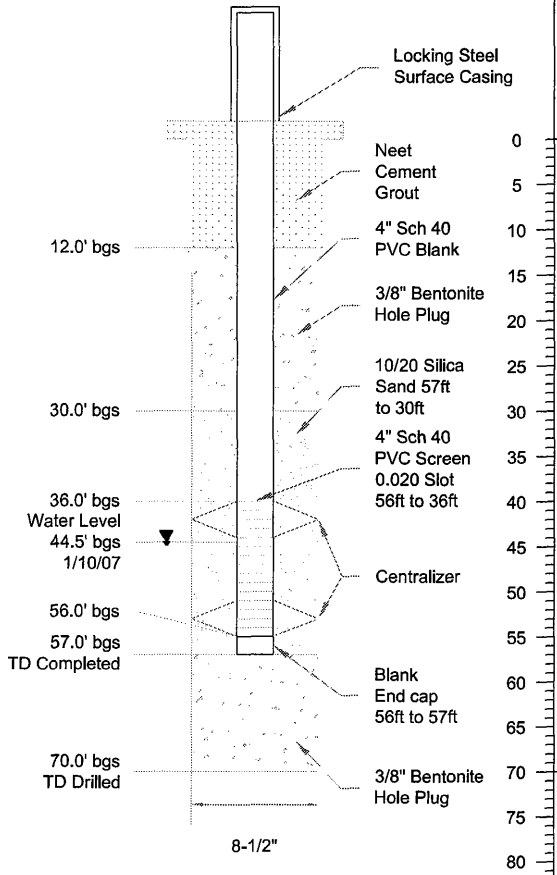

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	Qal	SM	0–40	SILTY SAND, DRY, 20% GRAVEL, 40% SAND, 40% FINES, DARK BRONW (7.5YR 3/2), NON-PLASTIC, ANGULAR TO SUB-ANGULAR SAND AND FINE GRAVELS, ORGANICS INTER BEDDED WITH OCCASIONAL WASTE ROCK, PH 7.5 ORGANIC RICH BETWEEN 0' - 20', PH 7.0 SILTY SAND, DRY, 20% GRAVEL, 40% SAND, 40% FINES, DARK BROWN (7.5YR 4/4), SOFT, NON-PLASTIC, ANGULAR TO SUB-ANGULAR SANDS AND FINE GRAVELS, ORGANICS INTER BEDDED WITH OCCASIONAL WASTE ROCK, PH 7.0 SILTY SAND, DRY, 20% GRAVEL, 40% SAND, 40% FINES, DARK BROWN (7.5YR 4/4), SOFT, NON-PLASTIC, AS ABOVE WITH MORE RED/ORANGE COLORS, PH 5.0 WATER ADDED TO SYSTEM 1 TO 3 gpm WATER LEVEL AT 40.5', DURING DRILLING, 30% GRAVEL, 40% SAND, 30% FINES, BROWN (7.5YR 5/4), SOFT, NON-PLASTIC, PH 4.5
		GM	40–50	ALLUVIUM / AS ABOVE GRAVELLY SILTY SAND, MORE FINE AND COURSE, 40% GRAVELS, 40% SANDS, 20% FINES, BROWN (7.5YR 5/4), FIRM, NON-PLASTIC, ANGULAR TO SUB-ANGULAR GRAVELS, PH 5.0 FRACTURED BEDROCK AT 52'
	Tki	BEDROCK	50–70	QUARTZ MONZONITE, GREY, PINK, WHITE, HARD TO FIRM, BROWN (7.5YR 5/4), HARD, NON-PLASTIC, CRYSTALLINE SUPPORTED MATRIX WITH OCCASIONAL INTERGROWN CRYSTALLINE, 60% TO 70% QUARTZ, 20% TO 30% FELDSPAR, 1% TO 5% MAFIC AND PYROXENE CRYSTALLINE, TRACE PYRITE AND WEATHERED PYRITE, TRACE IRON STAINING, WEATHERED, PH 7.0

Northing: 5261.48
Easting: 17695.14
Top of Casing Elevation: 5999.04

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Air Rotary 8 1/2" Bit Milltooth
Driller:	Juan Aguilar
Start Date	12/06/06
Completion Date	12/07/06
Boring Depth:	70.0 feet below ground surface
Water Level:	44.5' bgs (1/10/07)
Logged by:	Steven Schindler

1C STOCKPILE (DP-396)
TYRONE, NEW MEXICO

BORING LOG 396-2006-01
(REPLACES 1C-5)
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ALBUQUERQUE, NEW MEXICO

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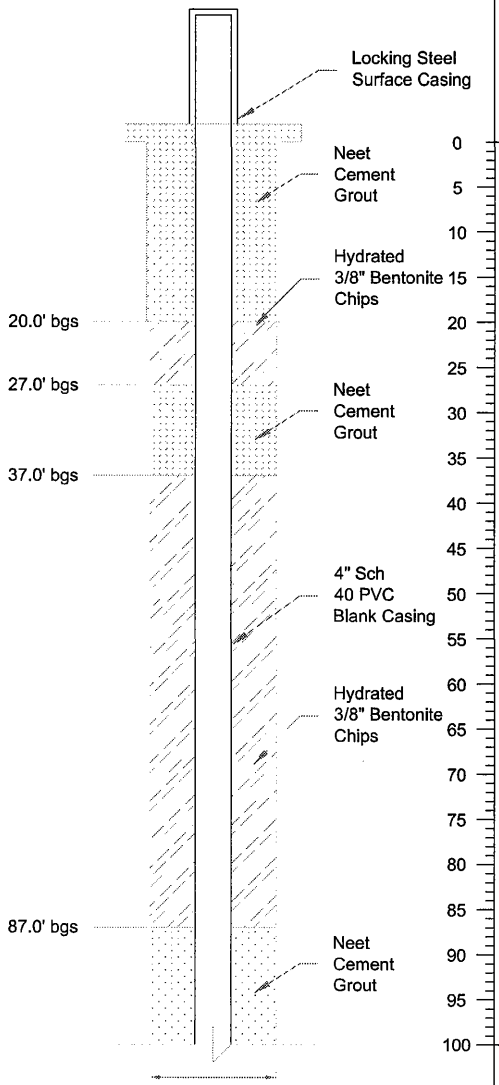

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	Qal	SM	0–10	SILTY SAND, ORGANIC, PALE BROWN (10YR 6/3), DRY, FRIABLE, 70% SAND, 30% FINES, VERY SOFT, NON-PLASTIC, NO HCL REACTION, PH 7.0
			10–20	SILTY SAND WITH GRAVEL, PINKISH GREY (5YR 7/2), FINE GRAVEL, (20% QUARTZ, 60% NA FELDSPAR, 20% K FELDSPAR), DRY, 15% GRAVEL, 60% SAND, 25% FINES, SOFT, NON-PLASTIC, NO HCL REACTION, PH 6.5
	Qtg	GW	20–25	GRAVEL, SANDY, ANGULAR, MEDIUM TO COARSE, REDDISH YELLOW (5YR 6/6), GRAVEL, (50% QUARTZ, 30% NA FELDSPAR, 20% K FELDSPAR), 80% GRAVEL, 15% SAND, 5% FINES, FIRM, NON-PLASTIC, NO HCL REACTION, PH 6.5
			25–30	SLIGHTLY MOIST, INJECTING WATER TO CLEAN HOLE
		GP	30–35	SANDY GRAVEL WITH SILT, FINE GRAVEL, SUBROUNDED, REDDISH YELLOW (7.5YR 7/8), (60% QUARTZ, 25% NA FELDSPAR, 15% K FELDSPAR), 60% GRAVEL, 25% SAND, 15% FINES, FIRM, NON-PLASTIC, NO HCL REACTION, PH 6.5
			35–45	SANDY GRAVEL WITH SILT, FINE GRAVEL, SUBROUNDED, REDDISH YELLOW (7.5YR 6/8), (50% QUARTZ, 30% NA FELDSPAR, 15% RED JASPAR), MOIST, 60% GRAVEL, 25% SAND, 15% FINES, FIRM, NON-PLASTIC, NO HCL REACTION, PH 5.5
			45–55	SANDY GRAVEL, FINE GRAVEL, SUBROUNDED, PINK (7.5YR 7/4), (70% QUARTZ, 20% NA FELDSPAR, 10% K FELDSPAR), MOIST, 60% GRAVEL, 30% SAND, 10% FINES, FIRM, NON-PLASTIC, NO HCL REACTION, PH 5.5
			55–65	SANDY GRAVEL, FINE, SUBROUNDED, YELLOWISH RED (5YR 5/6), (50% QUARTZ, 30% NA FELDSPAR, 15% K FELDSPAR, 5% JASPER), DRY, 70% GRAVEL, 25% SAND, GRAVEL, 5% FINES, HARD, NON-PLASTIC, NO HCL REACTION, PH 5.5
		GM	65–75	GRAVEL WITH SILT AND SAND, MEDIUM TO COARSE, SANDY, SILTY, ANGULAR, DRY, REDDISH YELLOW (5YR 7/8), QUARTZ CLASTS, MONZONITE, HARD, NO HCL REACTION, PH 5.5 DRILLING HARDER AT 77'
	Tki	BED ROCK	75–80	IGNEOUS INTRUSIVE, QUARTZ MONZONITE, 60% QUARTZ, 25% NA FELDSPAR, 15% K FELDSPAR AND ACCESSERY MINERALS, REDDISH YELLOW (7.5YR 6/6), DRY. NO HCL REACTION, PH 6.0
			80–90	IGNEOUS INTRUSIVE, ALTERED FRACTURE ROCK, HEMATITE, JASPER, RED MONZONITE DARK YELLOWISH BROWN (10R 4/6), DRY
			90–100	IGNEOUS ROCK, AS ABOVE WITH 20% NA FELDSPAR, RED (10R 4/6), DRY, NO HCL REACTION, PH 6.5

Northing: 5428.22
Easting: 18035.89
Top of Casing Elevation: 5987.94

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 9-7/8" Tri-Cone bit to 20' 8 1/2" Bit Milltooth 20' to 203'
Driller:	Juan Aguilar
Start Date	12/11/06
Completion Date	12/12/06
Boring Depth:	203.0 feet below ground surface
Water Level:	134.61' bgs 01-10-07)
Logged by:	Clay Kilmer

1C STOCKPILE (DP-396)
TYRONE, NEW MEXICO

BORING LOG 396-2006-02
(REPLACES MB-18 D)
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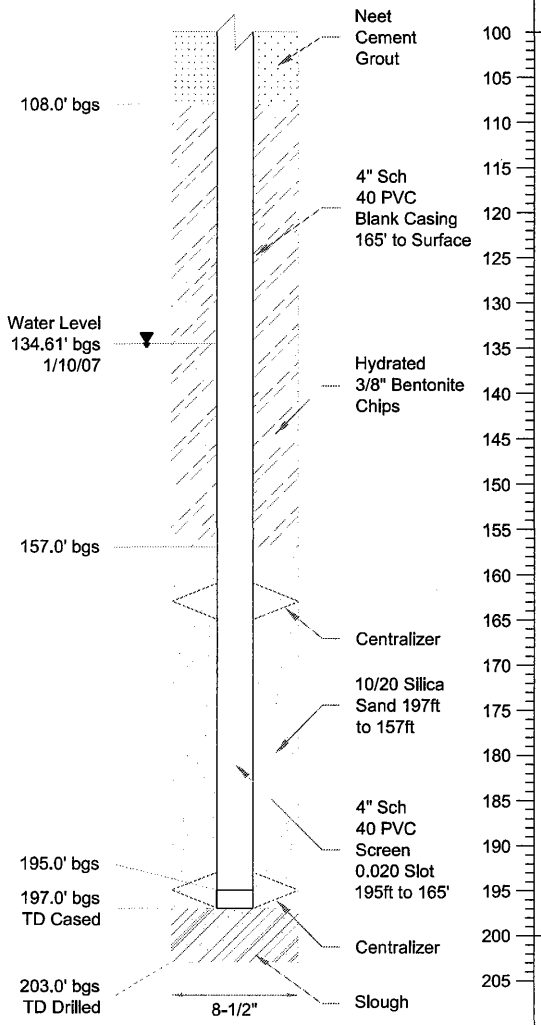

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	Tki	BED ROCK	105	IGNEOUS INTRUSIVE FRACTURE FILL, 50% QUARTZ, 40%, SOFT, SLIGHTLY MOIST, PH 6.5
			110	
			115	IGNEOUS INTRUSIVE, AS ABOVE, SOFT, NO HCL REACTION, DRY, PH 6.5
			120	
			125	IGNEOUS INTRUSIVE, MEDIUM CRYSTALLINE TO APHANITIC, 20% WHITE / CLEAR QUARTZ, 50% HEMATITE, DARK RED (10R 3/6 TO GREY 2.5YR N5), HARD, DRY, BIT RESISTANCE, NO HCL REACTION, PH 6.5
			130	
			135	IGNEOUS ROCK, AS ABOVE, DRY, NO HCL REACTION, PH 6.5
			140	
			145	IGNEOUS INTRUSIVE, ALTERED FRACTURES, 60% QUARTZ, 15% NA FELDSPAR, 20% HEMATITE, SOFT, SLIGHTLY MOIST, RED (10R 4/8), NO HCL REACTION, PH 6.5
			150	
			155	IGNEOUS INTRUSIVE, MEDIUM TO FINE CRYSTALLINE, 60% QUARTZ, 15% NA FELDSPAR, 10% HEMATITE, DUSKY RED (10R 3/4) TO REDDISH GREY (10R 5/1), DRY, HARD, NO HCL REACTION, PH 6.5
			160	
			165	IGNEOUS INTRUSIVE, MEDIUM TO FINE CRYSTALLINE, 65% QUARTZ, 15% NA AND K FELDSPAR, 10% HEMATITE, RED (10R 4/4), MOIST, DRILLING, SOFT, WATER YEILDING FRACTURES, NO HCL REACTION, PH 7.0
			170	
			175	IGNEOUS INTRUSIVE, FINE, CRYSTALLINE, WEATHERED FELDSPARS BREAKING INTO CLAY (30%), QUARTZ, 50%, NA FELDSPAR, 20%, SOFT DRILLING, VERY MOIST, LIGHT REDDISH BROWN (5YR 6/4), NO HCL REACTION, PH 7.0
			180	
			185	IGNEOUS INTRUSIVE, 50% QUARTZ, 20% NA FELDSPAR, 15% K FELDSPAR, FINE TO MEDIUM CRYSTALLINE, HARD, MOIST, GREY (5YR 5/1 TO DARK RED 2.5YR 3/6), NO HCL REACTION, PH 7.0
			190	
			195	IGNEOUS INTRUSIVE, MEDIUM TO COARSE CRYSTALLINE, 40% QUARTZ, 30% NA / CA FELDSPAR, 20% K FELDSPAR, 10% HEMATITE, FRACTURED, BIT TORQUING, MAKING WATER, REDDISH BROWN (2.5YR 4/4), YIELDING WATER, NO HCL REACTION, PH 7.0
			200	

Northing: 5428.22
Easting: 18035.89
Top of Casing Elevation: 5987.94

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 9-7/8" Tri-Cone bit to 20' 8 1/2" Bit Milltooth 20' to 203'
Driller:	Juan Aguilar
Start Date	12/11/06
Completion Date	12/12/06
Boring Depth:	203.0 feet below ground surface
Water Level:	134.61' bgs (01-10-07)
Logged by:	Clay Kilmer

1C STOCKPILE (DP-396)
TYRONE, NEW MEXICO

BORING LOG 396-2006-02
(REPLACES MB-18 D)
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ALBUQUERQUE, NEW MEXICO

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LITHOLOGIC DESCRIPTION

DRILLING NOTES:

DRILLED 9-7/8in HOLE WITH DRIVE CASING TO 20ft.

DRILLED 8-1/2in HOLE 20ft TO 203ft, TD.

AIR-FOAM ASSIST ROTARY DRILLING TO 60ft.

DRIED UP HOLE AT 60ft, DRILLED AIR ONLY TO TD.

NOTED SLIGHT MOISTURE AT 105ft AND 145ft.

NOTED MOIST MATERIAL AT 106ft TO 203ft, WITH SUSTAINED WATER PRODUCTION AT 195ft.

SOUNDED FLUID LEVEL AT 134ft BELOW GRADE AFTER REACHING TD AND SHUTTING DOWN.

WATER BEARING ZONE 160ft TO 200ft BELOW L. S. WITH CONFINED HEAD TO 134ft.

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 9-7/8" Tri-Cone bit to 20' 8 1/2" Bit Milltooth 20' to 203'
Driller:	Juan Aguilar
Start Date	12/11/06
Completion Date	12/12/06
Boring Depth:	203.0 feet below ground surface
Water Level:	134.61' bgs (01-10-07)
Logged by:	Clay Kilmer

1C STOCKPILE (DP-396)
TYRONE, NEW MEXICO

BORING LOG 396-2006-02
(REPLACES MB-18 D)
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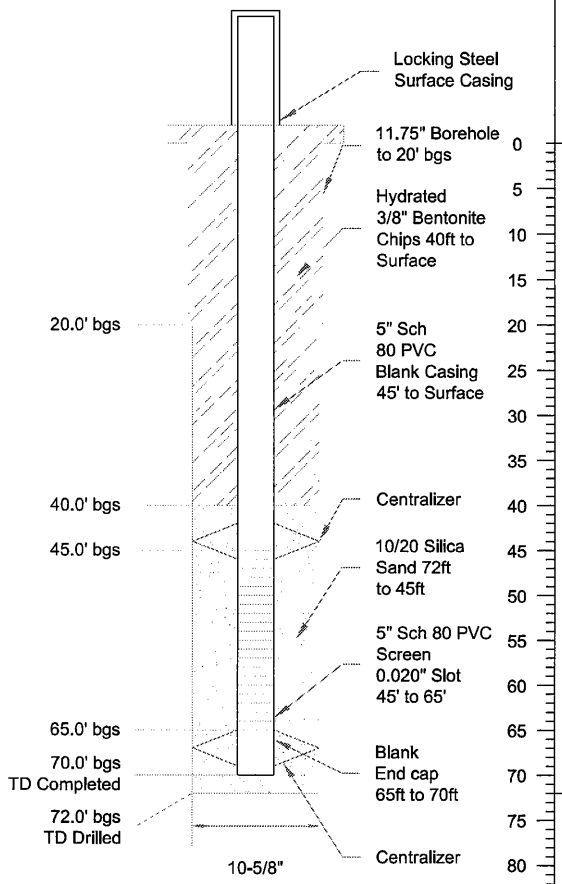

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	Qal	SM	5	SILTY SAND, ORGANIC, PALE BROWN (10YR 6/3), DRY, FRIABLE, 70% SAND, 30%, FINES, VERY SOFT, NON-PLASTIC, PH 6.5, NO HCL REACTION
			10	
			15	SILTY SAND WITH GRAVEL, PINKISH GREY (5YR 7/2), FINE GRAVEL, (20% QUARTZ, 60% NA FELDSPAR, 20% K FELDSPAR), DRY, 15% GRAVEL, 60% SAND, 25% FINES, SOFT, NON-PLASTIC, PH 6.5, NO HCL REACTION
			20	
	QTg	GP/GM	25	SANDY GRAVEL, ANGULAR, MEDIUM TO COURSE, REDDISH YELLOW (5YR 6/6), GRAVEL, (50% QUARTZ, 30% NA FELDSPAR, 20% K FELDSPAR), 80% GRAVEL, 15% SAND, 5% FINES, FIRM, NON-PLASTIC, PH 6.0 NO HCL REACTION
			30	
			35	SANDY GRAVEL WITH SILT, SUBROUNDED, REDDISH YELLOW (7.5YR 7/8), (60% QUARTZ, 25% NA FELDSPAR, 15% K FELDSPAR), 60% GRAVEL, 25% SAND, 15% FINES, FIRM, NON-PLASTIC, PH 6.0, NO HCL REACTION
			40	
			45	SANDY GRAVEL WITH SILT, SUBROUNDED, REDDISH YELLOW (7.5YR 6/8), (50% QUARTZ, 30% NA FELDSPAR, 15% HENATRTIC JASPER), 60% GRAVEL, 25% SAND, 15% FINES, FIRM, NON-PLASTIC, PH 6.0, NO HCL REACTION
		GP	50	
			55	GRAVEL, FINE, SANDY, SUBROUNDED, PINK (7.5YR 7/4), (70% QUARTZ, 20% NA FELDSPAR), 60% GRAVEL, 30% SAND, 10% FINES, HARD, NON-PLASTIC, PH 6.5, NO HCL REACTION
		GM	60	DRILLING VERY HARD, BIT TORQUING
		GP	65	GRAVEL, FINE, SANDY, ANGULAR, YELLOWISH RED (5YR 5/6), (50% QUARTZ, 30% NA FELDSPAR, 15% K FELDSPAR, 5% JASPER), 70% GRAVEL, 25% SAND, 5% FINES, HARD, NON-PLASTIC, PH 6.0, NO HCL REACTION
			70	
			75	
			80	
			85	
			90	
			95	
			100	

Northing: 5442.12
Easting: 18053.88
Top of Casing Elevation: 5987.74

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 11.75" Tri-Cone bit to 20' bgs, 10-5/8" Tri-Cone bit 20' to 72' bgs
Driller:	Juan Aguilar
Start Date	12/13/06
Completion Date	12/13/06
Boring Depth:	72.0 feet below ground surface
Water Level:	Dry (1/10/07)
Logged by:	Clay Kilmer

1C STOCKPILE (DP-396)
TYRONE, NEW MEXICO

BORING LOG 396-2006-03
(REPLACES MB-19)
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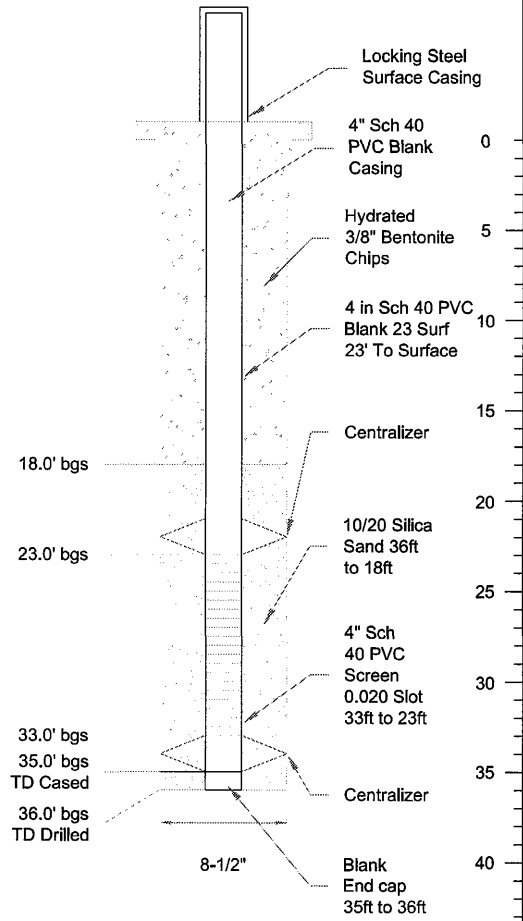

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	FILL	SW	0–5	FILL GRAVELLY SAND, COARSE, FINE, SILTY, BROWN, (7.5YR 5/4), 25% GRAVELS, 65% SAND, 10% FINES, SOFT, NON-PLASTIC, PH 5
	Qal	GM	5–30	SILTY GRAVEL WITH SAND, MEDIUM GRAVEL, DARK BROWN, (7.5YR 4/3), 50% GRAVEL, 20% SAND, 30% FINES, FIRM, MOIST, PH <4 VERY MOIST SILTY GRAVEL WITH SAND, FINE GRAVEL, REDDISH YELLOW (7.5YR 7/6), VERY MOIST, 50% GRAVEL, 30% SAND, 20% FINES, FIRM, NON-PLASTIC, PH <4
	QTg	GM	30–35	DRILLING HARD SANDY GRAVEL WITH SILT, FINE GRAVEL, SILTY, PINK (7.5YR 7/4), 40% GRAVEL, 40% SAND, 20% FINES, VERY HARD, NON-PLASTIC DRY

Northing: 6772.83
Easting: 18966.48
Top of Casing Elevation: 5948.23

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 8-1/2" Bit Milltooth
Driller:	Juan Aguilar
Start Date	12/15/06
Completion Date	12/15/06
Boring Depth:	36.0 feet below ground surface
Water Level:	Dry (1-10-07)
Logged by:	Clay Kilmer

1C STOCKPILE (DP-396)
TYRONE, NEW MEXICO

BORING LOG 396-2006-05
(1C T-1 PIEZOMETER)
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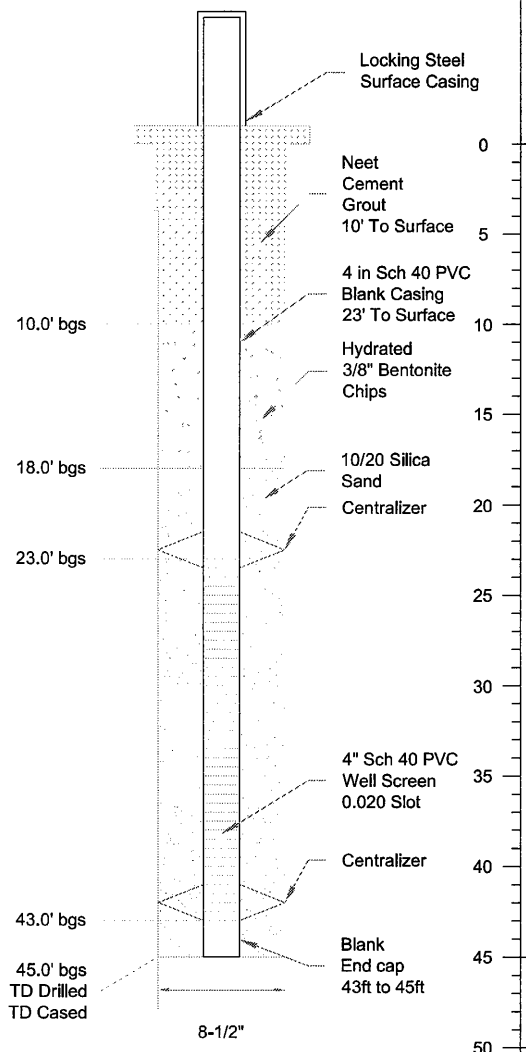

SAMPLE INTERVAL	GRAPHIC LOG	USCS SYMBOL OR ROCK UNIT	DEPTH (FEET BGS)	LITHOLOGIC DESCRIPTION
CONTINUOUS SAMPLE LOGGING	FILL	SP	0	FILL
			5	GRAVELLY SAND WITH SILT, BROWN (7.5YR 5/2), DRY, FRIABLE, 20% GRAVEL, 70% SAND, 10% FINES, SOFT, NON-PLASTIC, PH 7.0
		SP	10	
			15	GRAVELLY SAND WITH SILT, BROWN (7.5YR 5/2), DRY FRIABLE, 30% GRAVEL, 60% SAND, 10% FINES, SOFT, NON-PLASTIC, PH 7.0
	Qal		20	SANDY GRAVEL WITH SILT, PINK (5YR 7/6), SLIGHTLY MOIST, 60% GRAVEL, 25% SAND, 15% FINES, SOFT, PH 7.0
		GP/GM	25	
	QTg	SP	30	GRAVELLY SAND WITH SILT, REDDISH YELLOW (7.5YR 7/6), SLIGHTLY MOIST, 20% GRAVEL, 55% SAND, 15% FINES, FIRM NON-PLASTIC, PH 7.0
			35	
			40	
			45	
			50	

Northing: 6280.40
Easting: 18515.90
Top of Casing Elevation: 5977.72

Project:	Tyrone No. 1C Stockpile Well Replacement
Drilling Company:	W. D. C. (Peralta, NM)
Drilling Rig/Bit:	Stratex - Air Rotary 8-1/2" Bit Milltooth
Driller:	Juan Aguilar
Start Date	12/14/06
Completion Date	12/14/06
Boring Depth:	45.0 feet below ground surface
Water Level:	Dry (1/10/07)
Logged by:	Clay Kilmer

1C STOCKPILE (DP-396)
TYRONE, NEW MEXICO

BORING LOG 396-2006-06
(1C T-2 PIEZOMETER)
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Golder Associates
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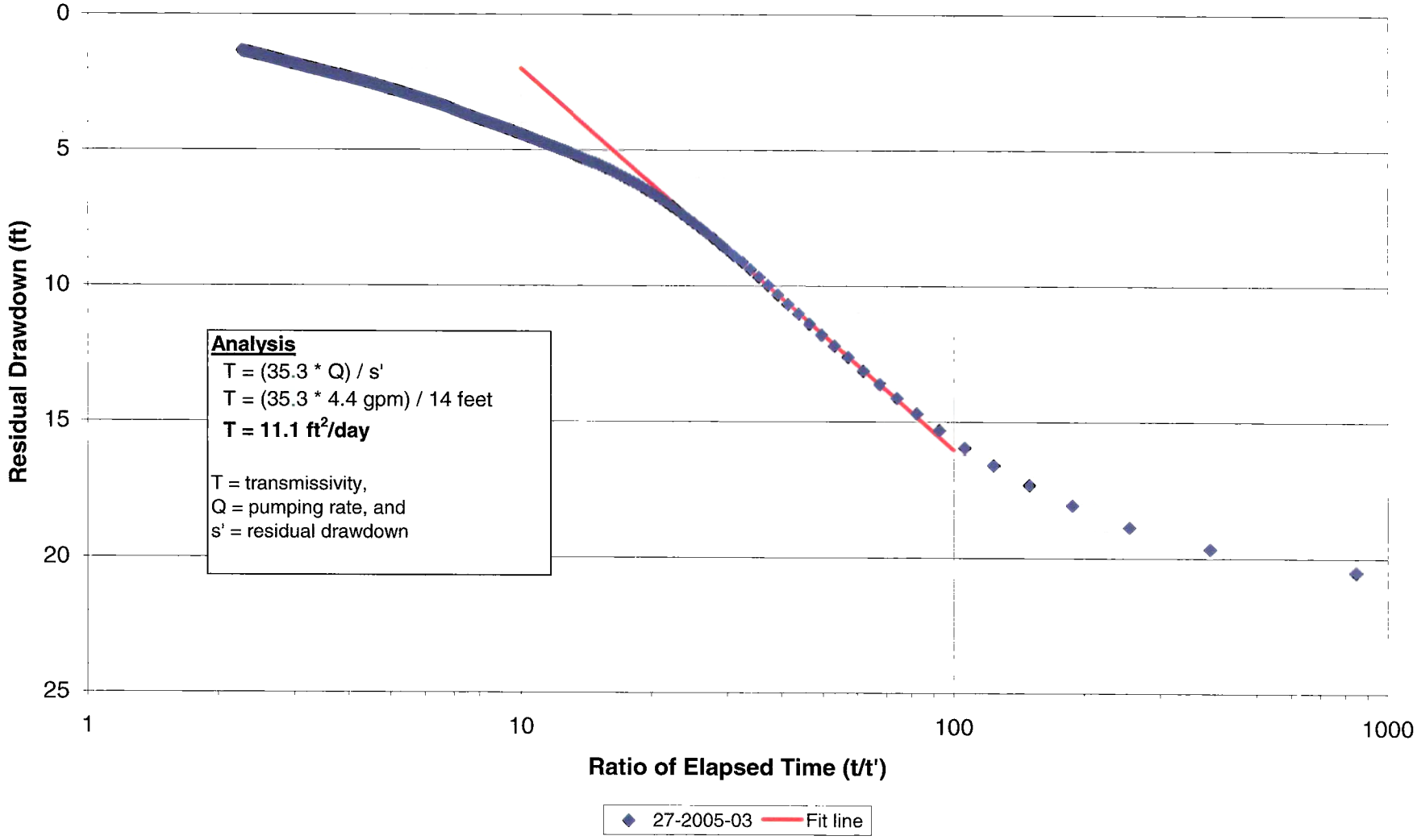
Appendix B

Aquifer Test Analysis and Electronic Data Files

Aquifer Test Analysis

Aquifer Test 27-2005-03: Cooper-Jacob Analysis

Phelps Dodge Tyrone, Inc.



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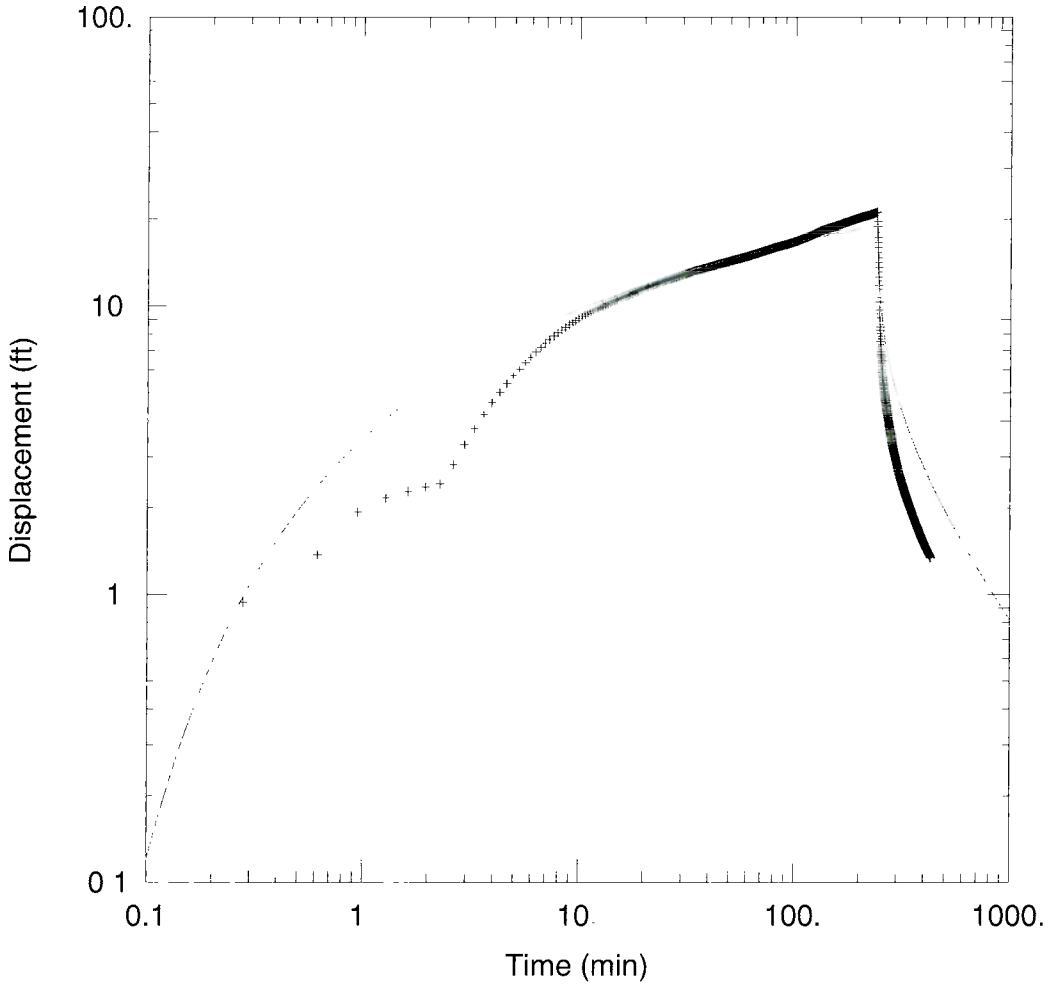


27-2005-03 AQUIFER TEST

Data Set: M:\...\27-2005-03_Theis_Final.aqt
Date: 05/04/07 Time: 14:54:59

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237
Location: Tyrone Mine Site
Test Well: 27-2005-03
Test Date: 11/19/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
27-2005-03	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
27-2005-03	0	0

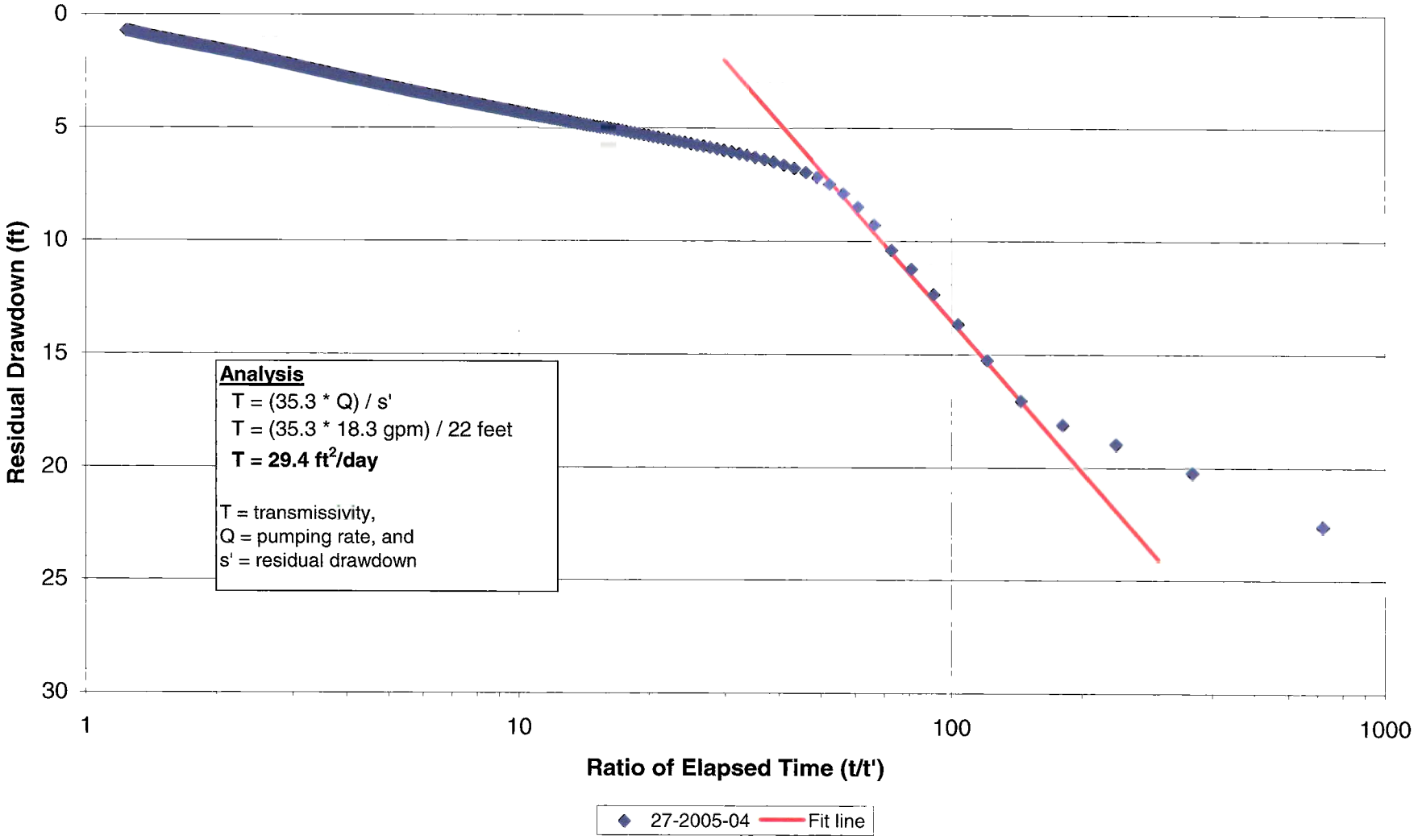
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 22.66 ft^2/day
S = 0.08013
Kz/Kr = 1
b = 25.3 ft

Aquifer Test 27-2005-04: Cooper-Jacob Analysis

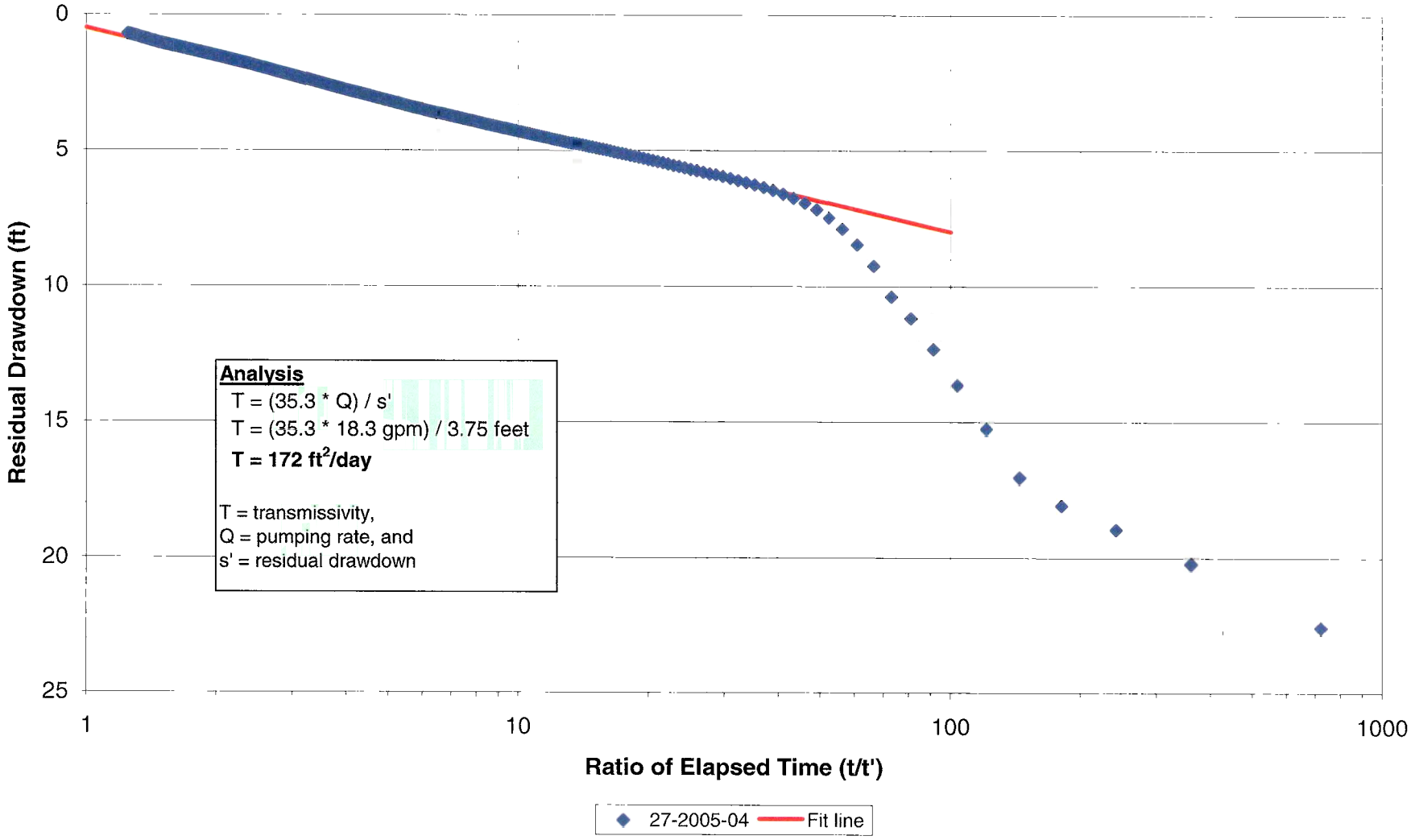
Phelps Dodge Tyrone, Inc.



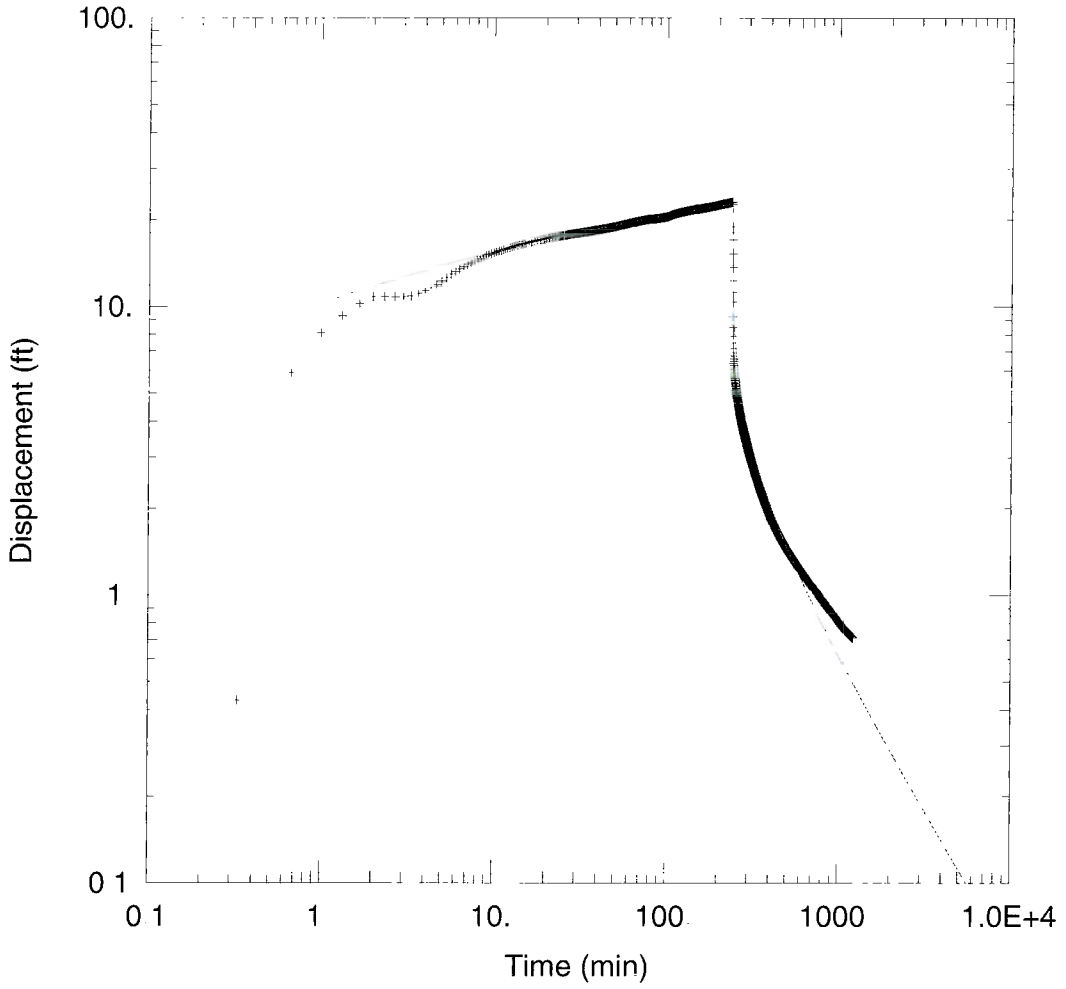
M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\027-2005-04\27-2005-04_Analysis xls

Aquifer Test 27-2005-04: Cooper-Jacob Analysis

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\027-2005-04\27-2005-04_Analysis_LateTime.xls



27-2005-04 AQUIFER TEST

Data Set: M:\...\27-2005-04_Theis_Final.aqt
Date: 05/04/07 Time: 15:05:42

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237
Location: Tyrone Mine Site
Test Well: 27-2005-04
Test Date: 11/18/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
27-2005-04	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
27-2005-04	0	0

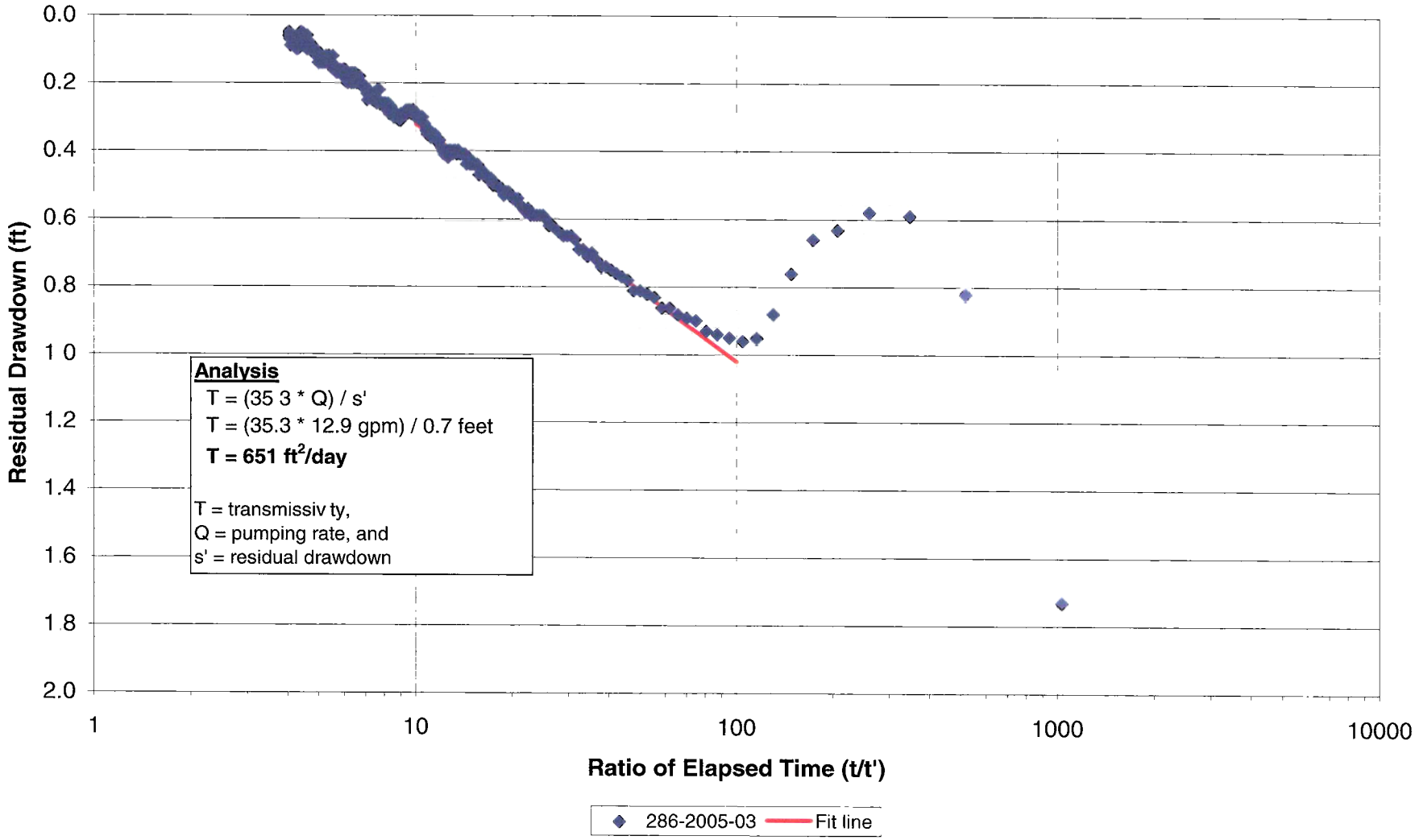
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

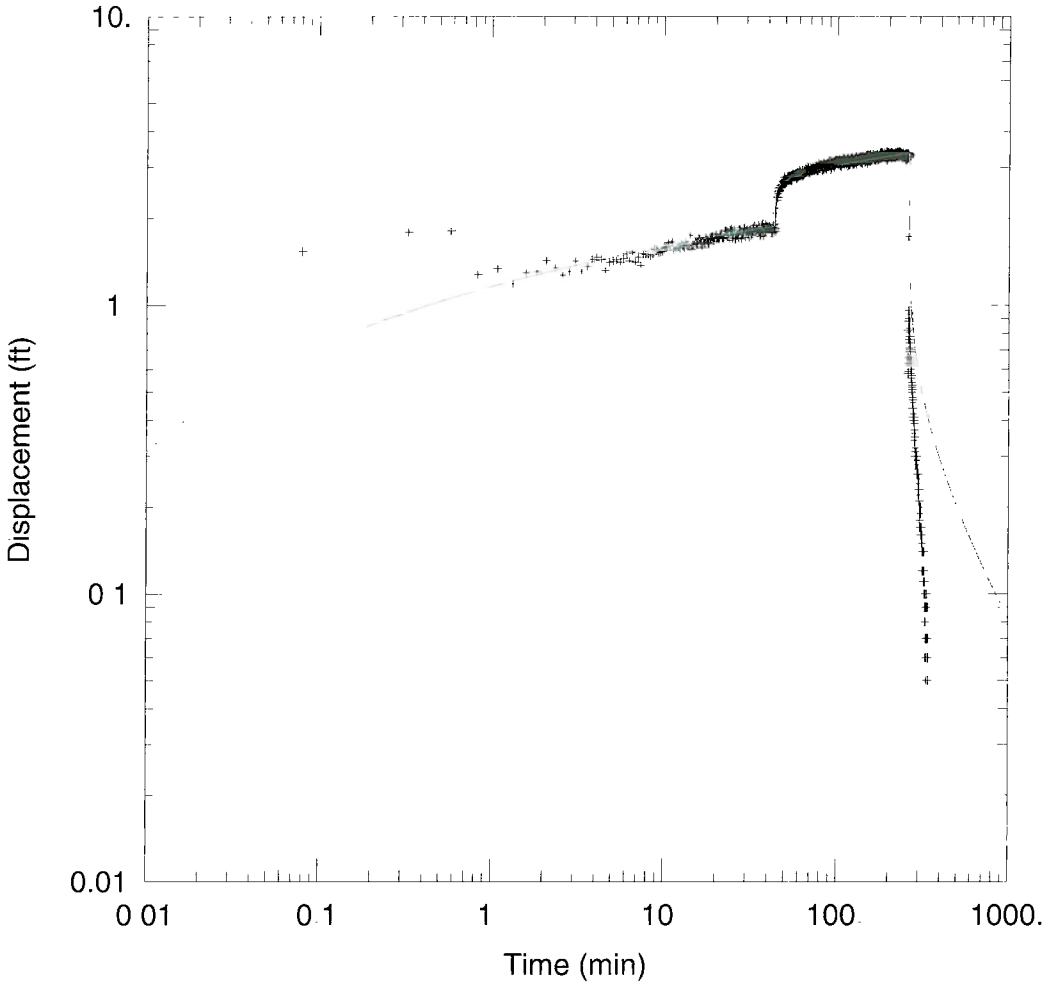
T = 123.2 ft^2/day
S = 0.0127
Kz/Kr = 0.1
b = 29.4 ft

Aquifer Test 286-2005-03: Cooper-Jacob Analysis

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\286-2005-03\286-2005-03_Analysis.xls



286-2005-03 AQUIFER TEST

Data Set: M:\...\286-2005-03_Theis_Final.aqt
Date: 05/04/07 Time: 15:17:16

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237.00
Location: 286-2005-03
Test Well: 286-2005-03
Test Date: 10/27/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
286-2005-03	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
286-2005-03	0	0

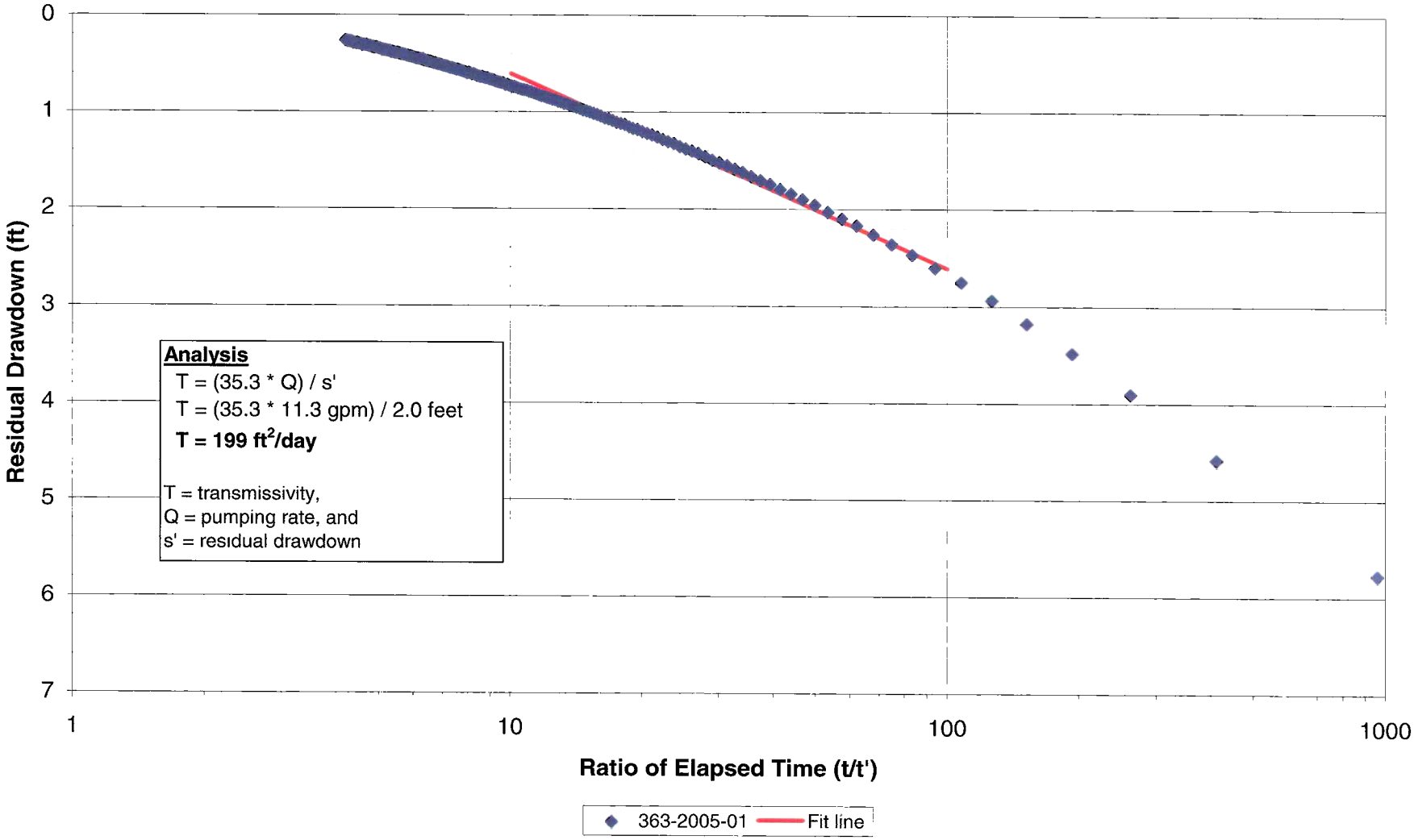
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

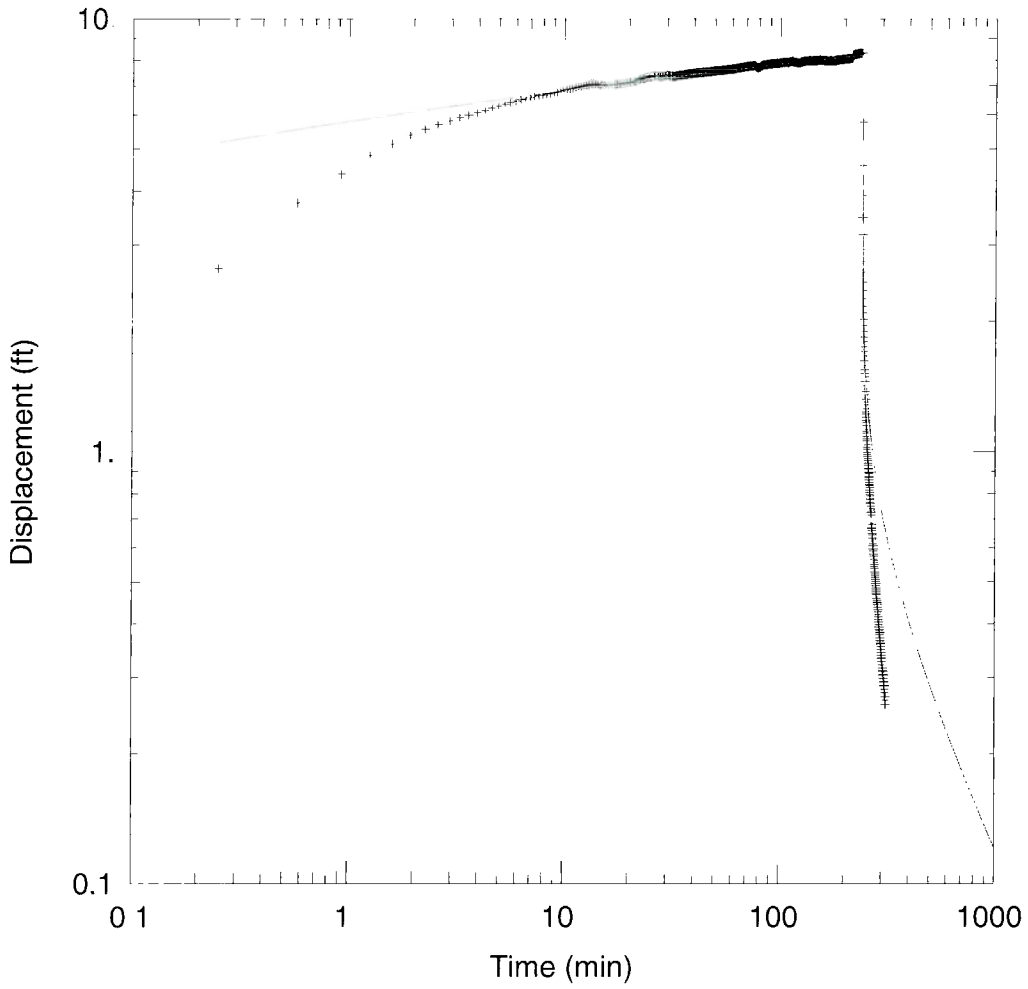
T = 684.5 ft^2/day
S = 0.01395
Kz/Kr = 0.1
b = 29.4 ft

Aquifer Test 363-2005-01: Cooper-Jacob Analysis

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\363-2005-01\363-2005-01_Analysis xls



363-2005-01 AQUIFER TEST

Data Set: M:\...\363-2005-01_Theis_Final.aqt
Date: 05/04/07 Time: 15:27:26

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237.00
Location: Tyrone Mine Site
Test Well: 363-2005-01
Test Date: 11/1705

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
363-2005-01	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
363-2005-01	0	0

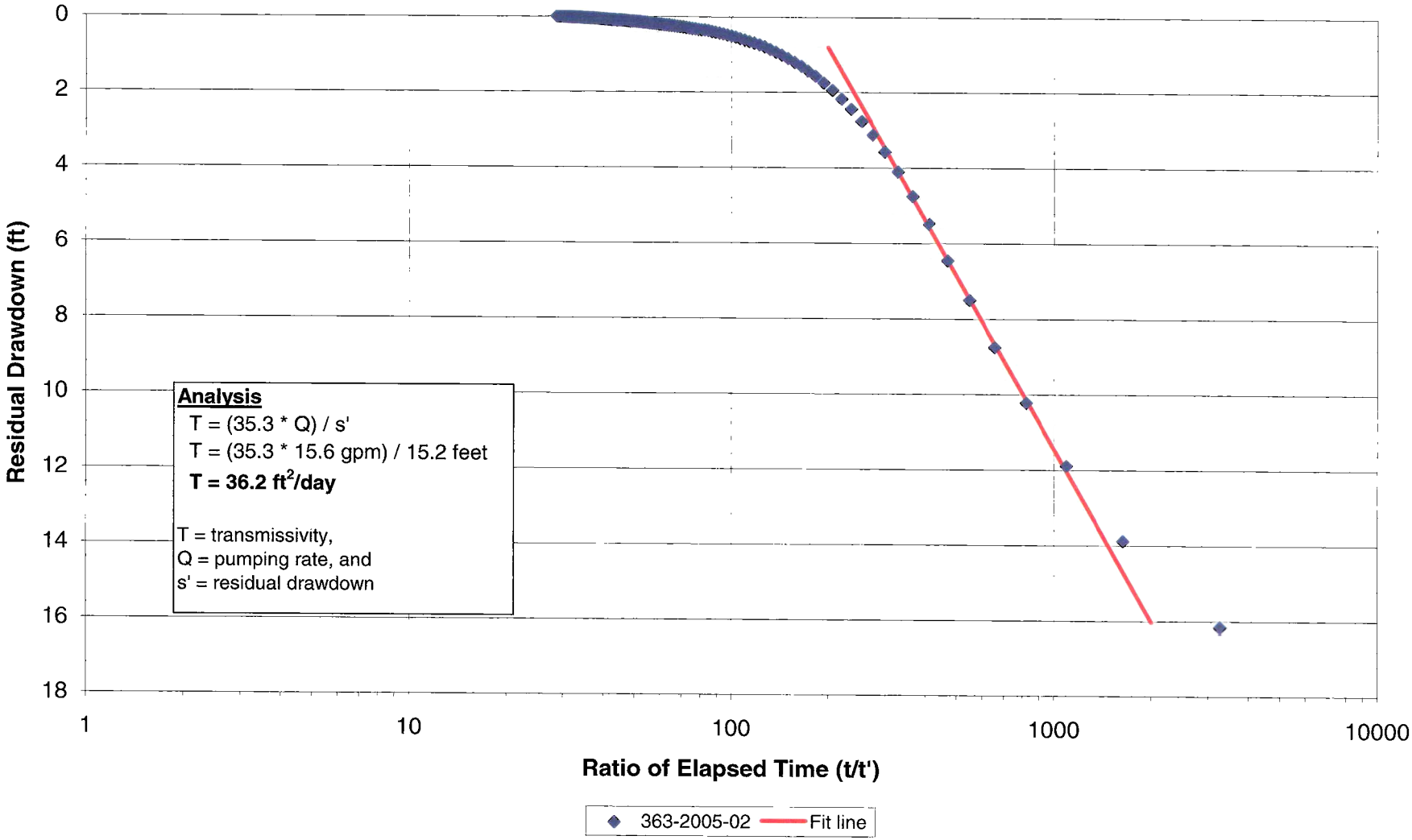
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 392 ft^2/day
S = 7.09E-6
Kz/Kr = 1
b = 29.4 ft

Aquifer Test 363-2005-02: Cooper-Jacob Analysis

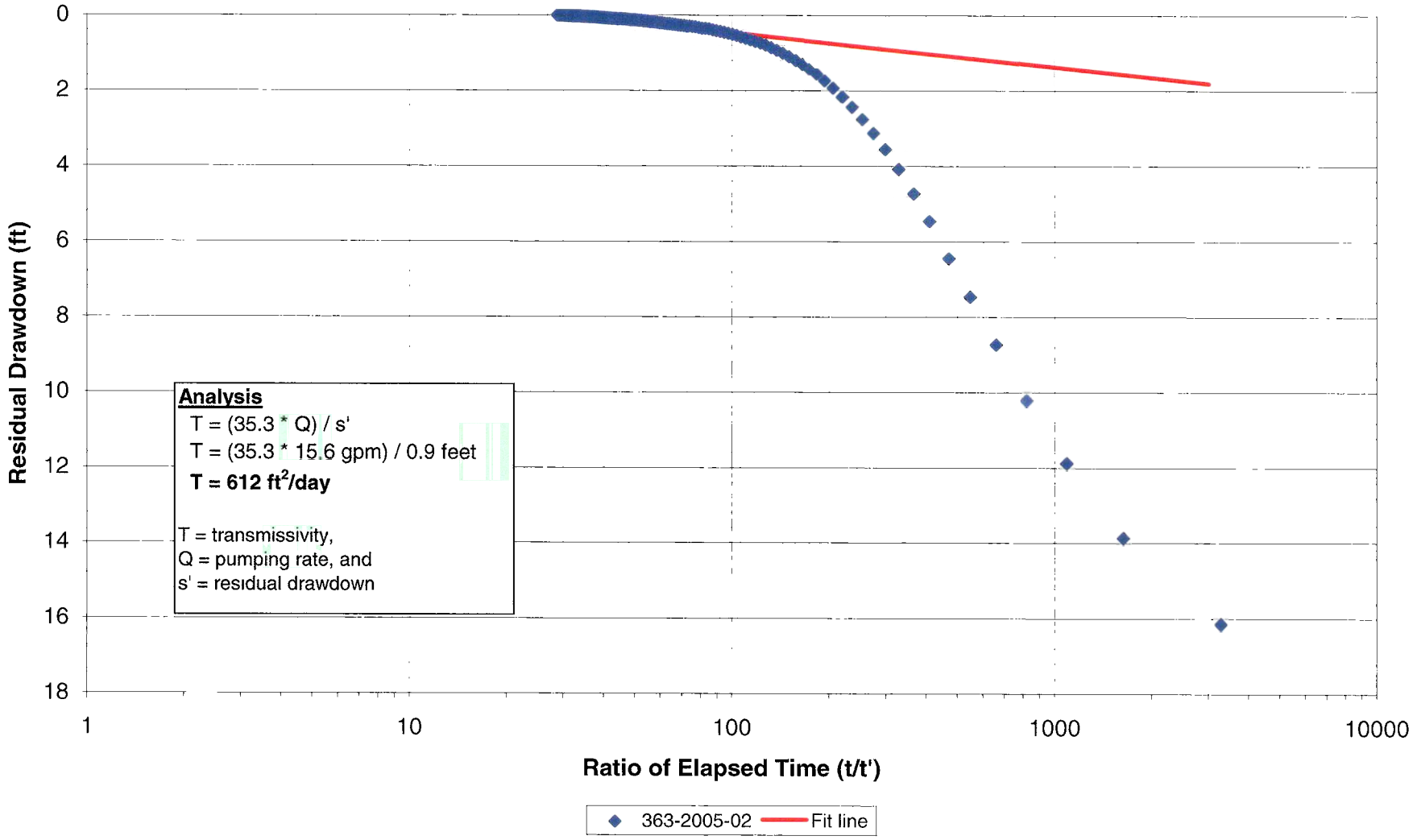
Phelps Dodge Tyrone, Inc.



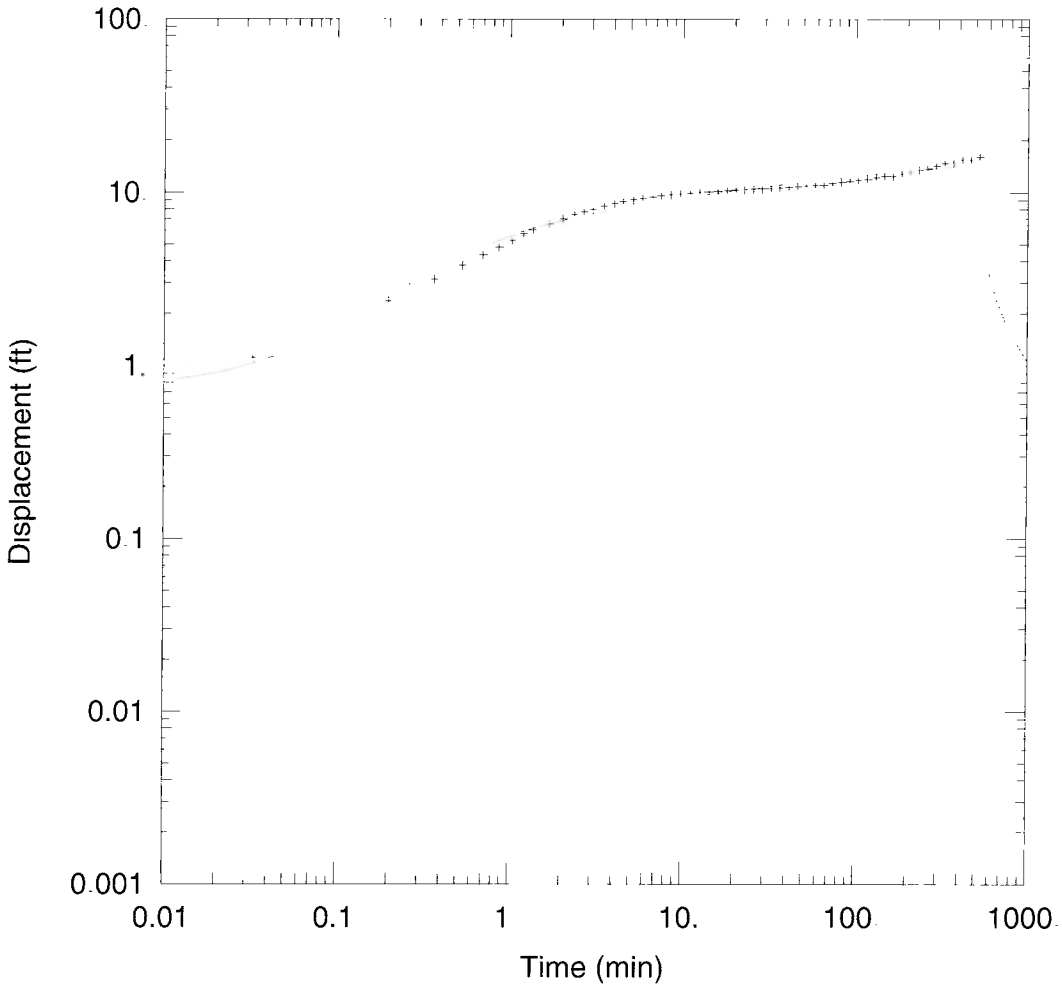
M:\Projects\LT05.0237 _Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\363-2005-02\363-2005-02_Analysis xls

Aquifer Test 363-2005-02: Cooper-Jacob Analysis

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\363-2005-02\363-2005-02_Analysis_LateTime.xls



363-2005-02 AQUIFER TEST

Data Set: M:\...\363-2005-02_Neuman_Final.aqt
Date: 05/04/07 Time: 15:50:45

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237.00
Location: Tyrone Mine Site
Test Well: 363-2005-02
Test Date: 10/28/05

AQUIFER DATA

Saturated Thickness: 100. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
363-2005-02	0	0

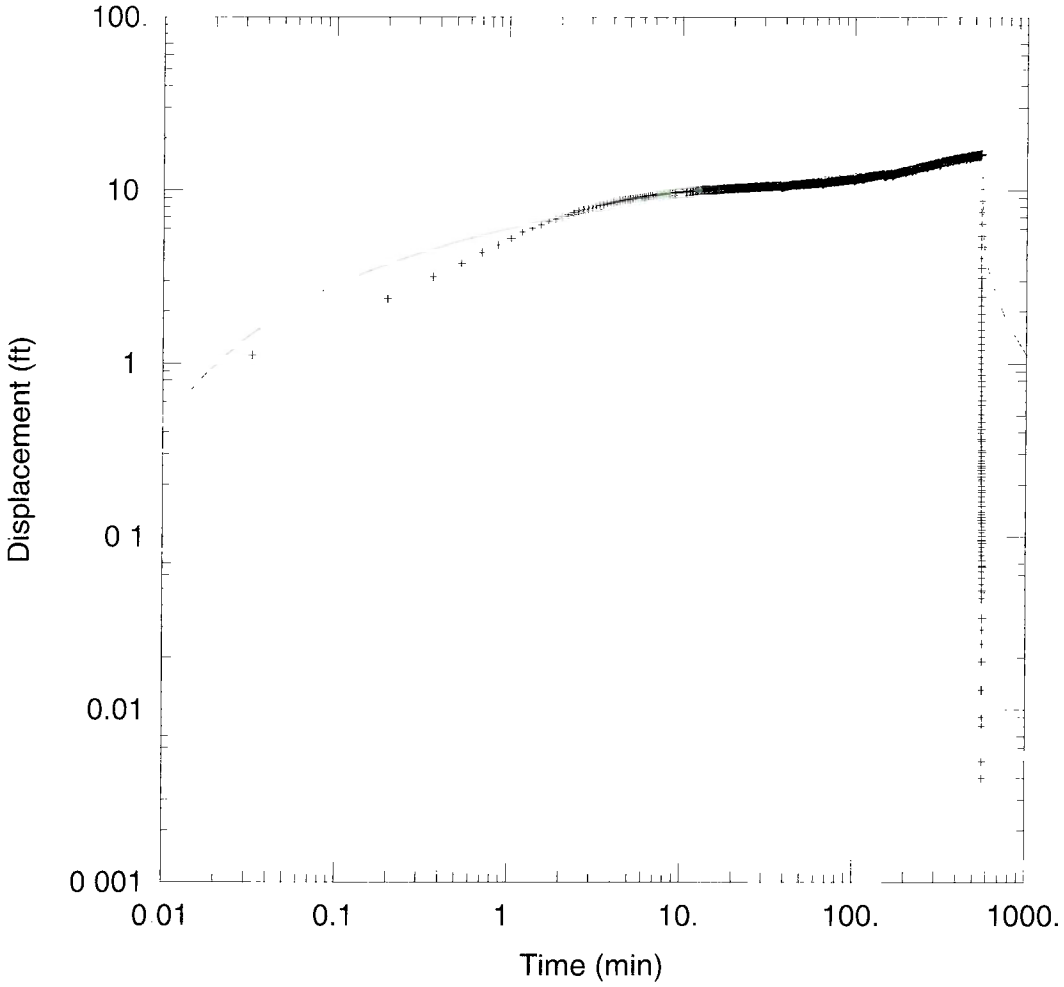
Observation Wells

Well Name	X (ft)	Y (ft)
363-2005-02	0	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 179.7 ft^2/day
S = 1.0E-5
Sy = 0.0731
ß = 0.1



363-2005-02 AQUIFER TEST

Data Set: M:\...\363-2005-02_Theis.aqt
Date: 05/04/07 Time: 15:50:55

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237.00
Location: Tyrone Mine Site
Test Well: 363-2005-02
Test Date: 10/28/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
363-2005-02	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
363-2005-02	0	0

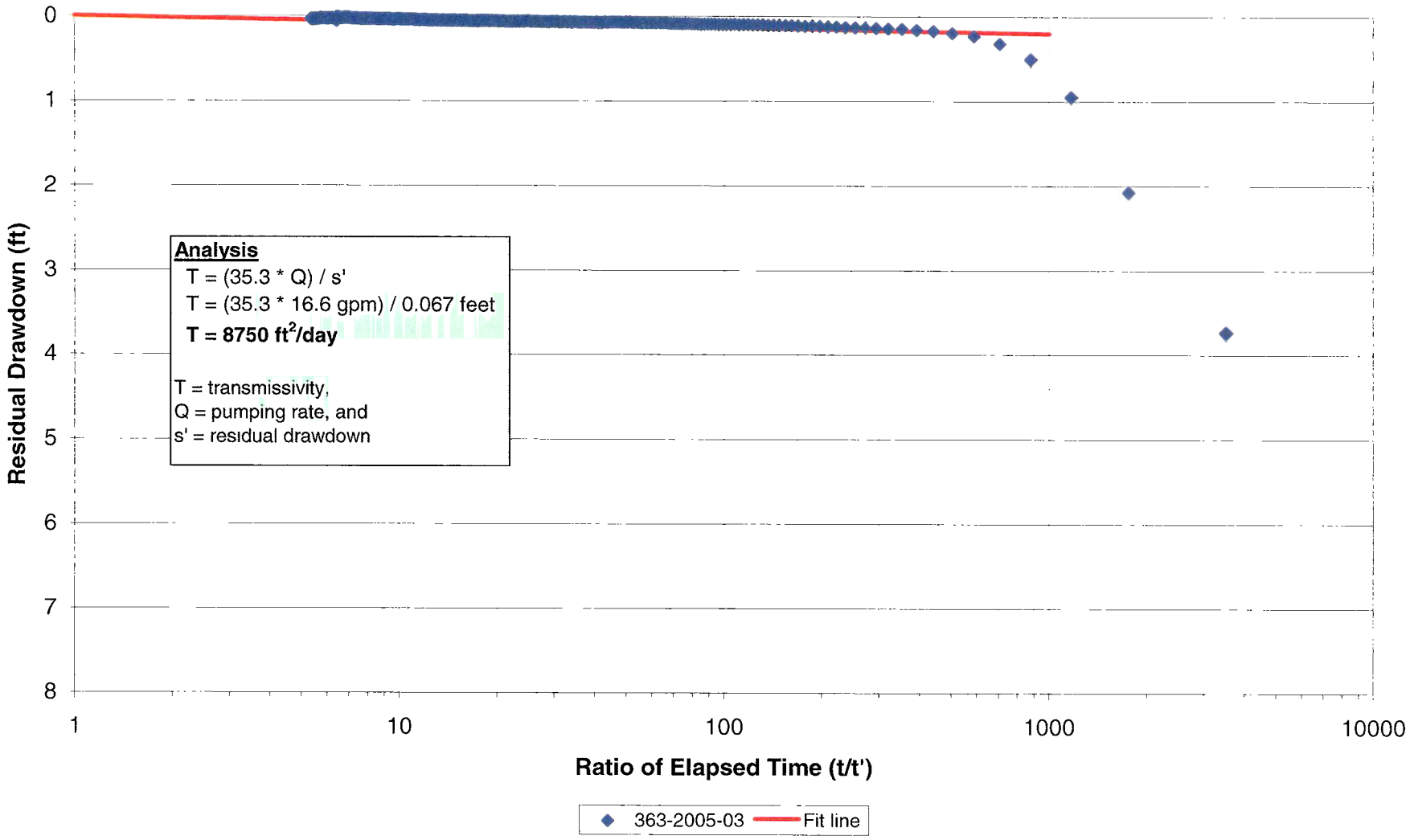
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

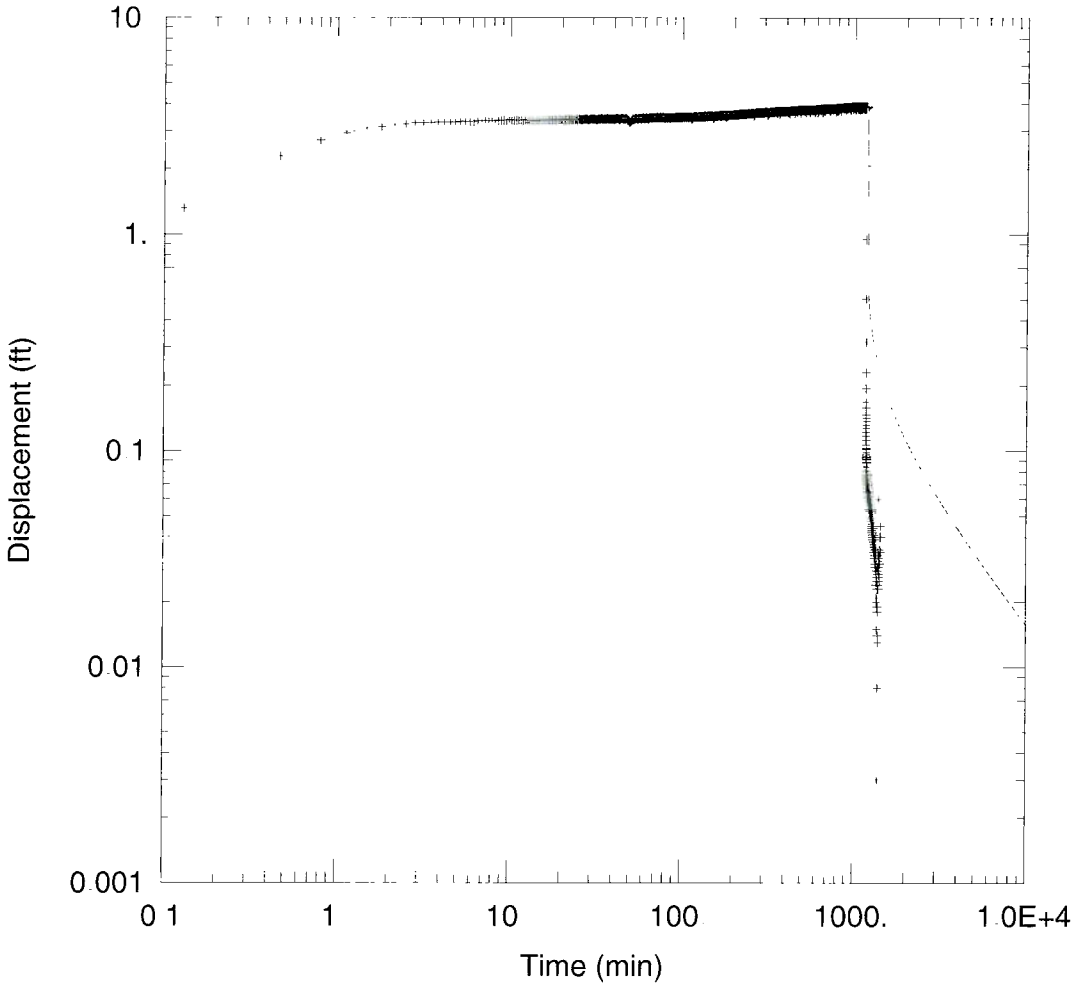
T = 168.8 ft^2/day
S = 0.02243
Kz/Kr = 0.1
b = 24.5 ft

Aquifer Test 363-2005-03: Cooper-Jacob Analysis

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05 0237 _Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\363-2005-03\363-2005-03_Analysis_LateTime xls



363-2005-03 AQUIFER TEST

Data Set: M:\...\363-2005-03_Final_Theis.aqt
Date: 05/04/07 Time: 16:56:43

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237
Location: Tyrone Mine Site
Test Well: 363-2005-03
Test Date: 11/18/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
363-2005-03	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
363-2005-03	0	0

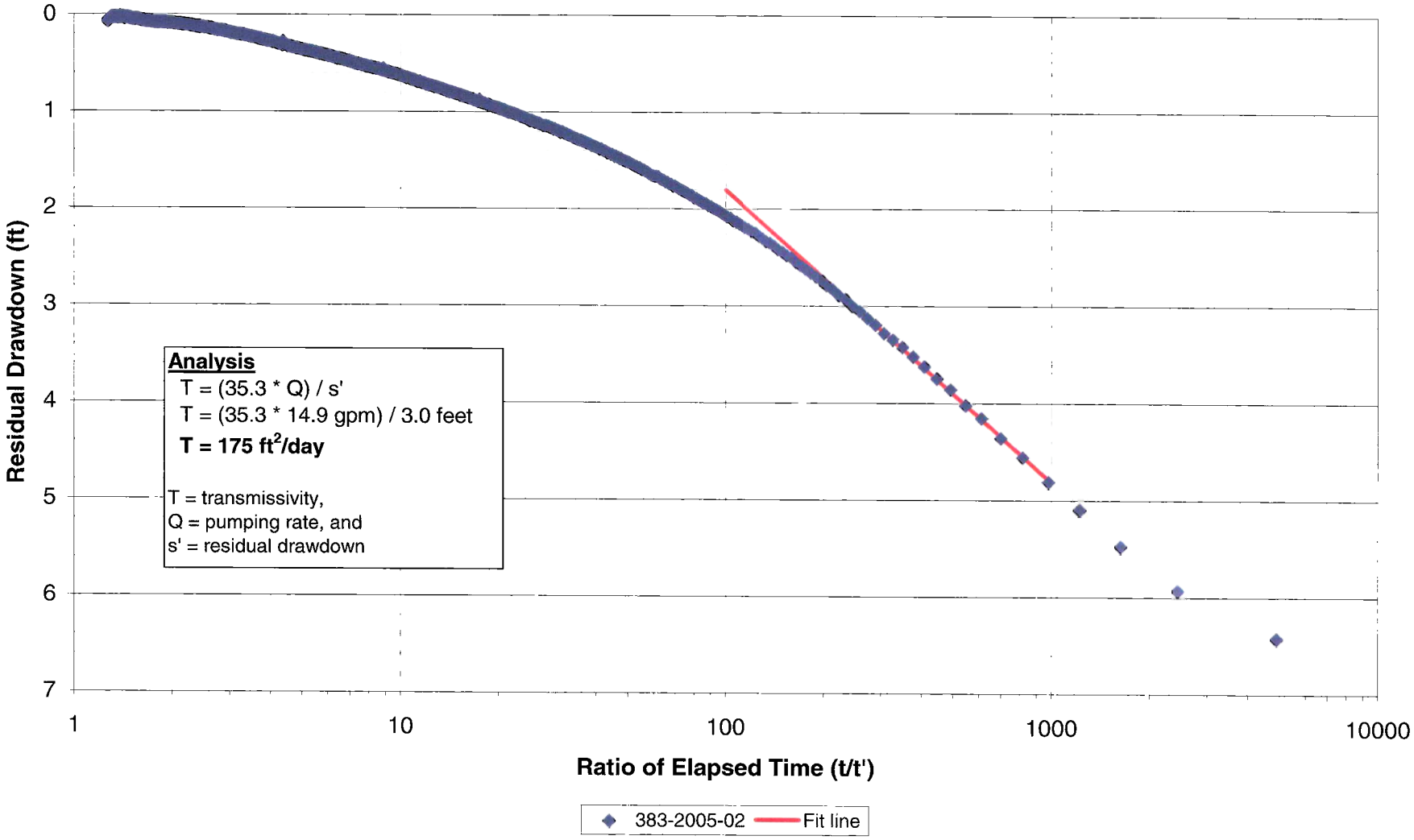
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 2039.1 ft^2/day
S = 9.505E-10
Kz/Kr = 0.1
b = 25.8 ft

Aquifer Test 383-2005-02: Cooper-Jacob Analysis

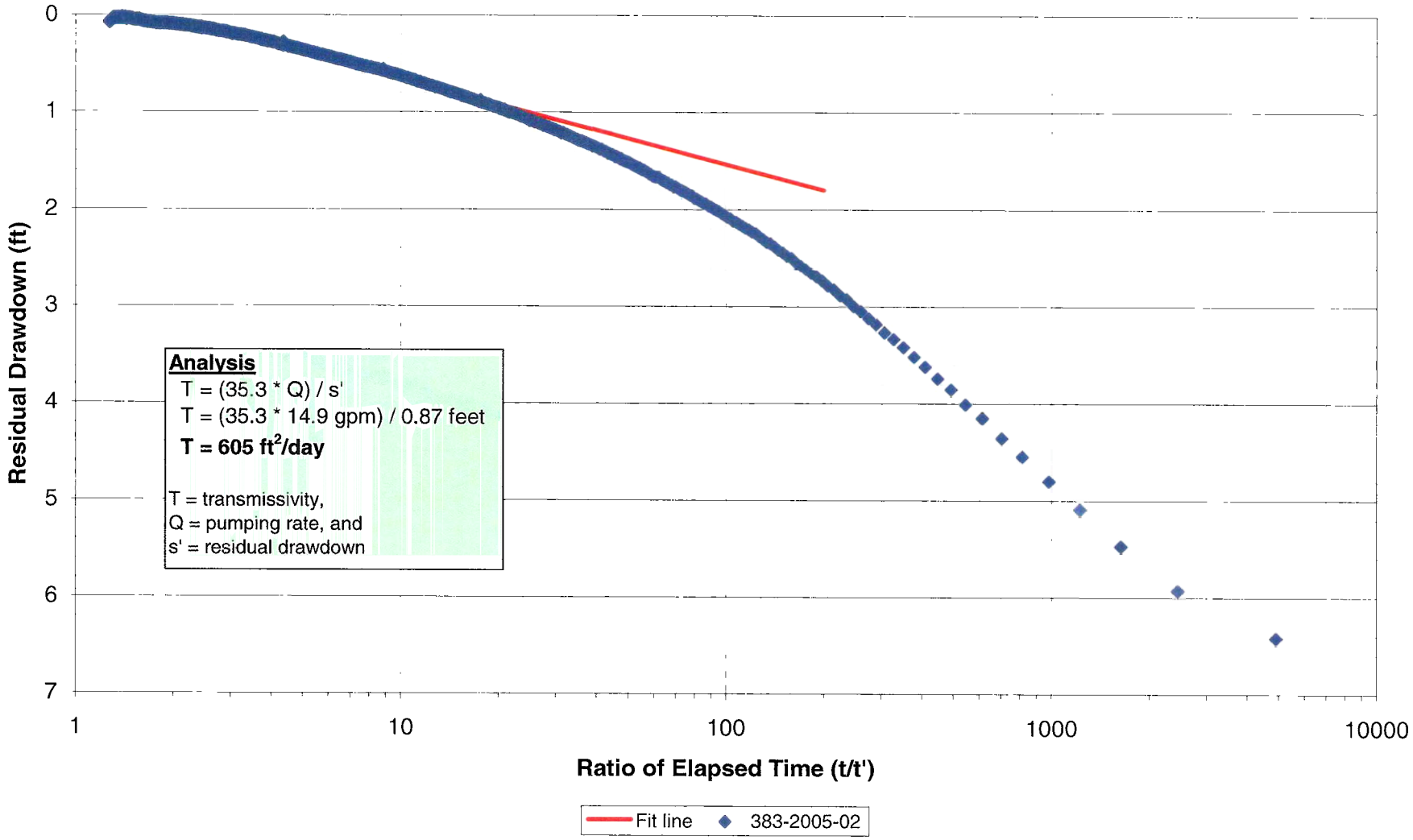
Phelps Dodge Tyrone, Inc.



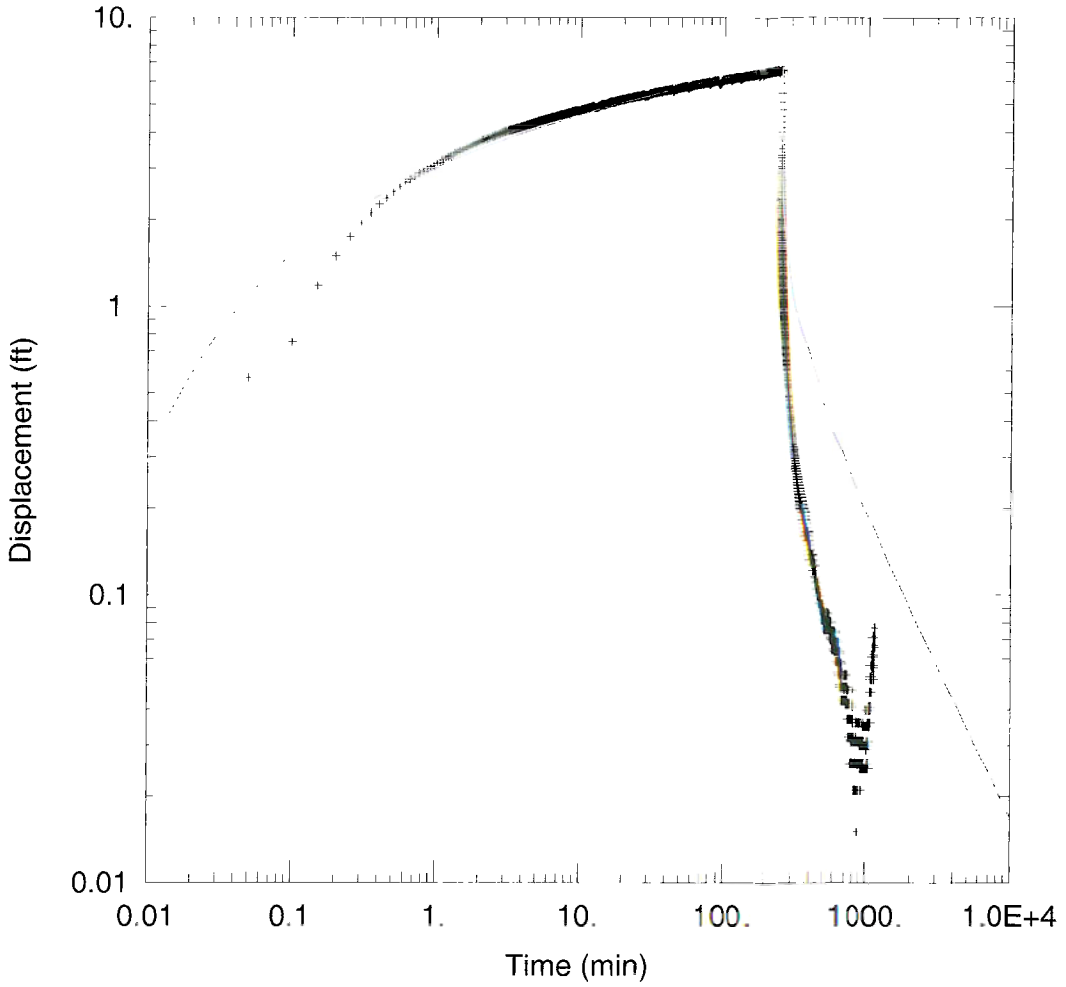
M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\383-2005-02\383-2005-02_Analysis xls

Aquifer Test 383-2005-02: Cooper-Jacob Analysis

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\383-2005-02\383-2005-02_Analysis_LateTime.xls



383-2005-02 AQUIFER TEST

Data Set: M:\...\383-2005-02.aqt
Date: 05/04/07 Time: 17:04:30

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237.00
Location: 383-2005-02
Test Well: 383-2005-02
Test Date: 11/7/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
383-2005-02	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
383-2005-02	0	0

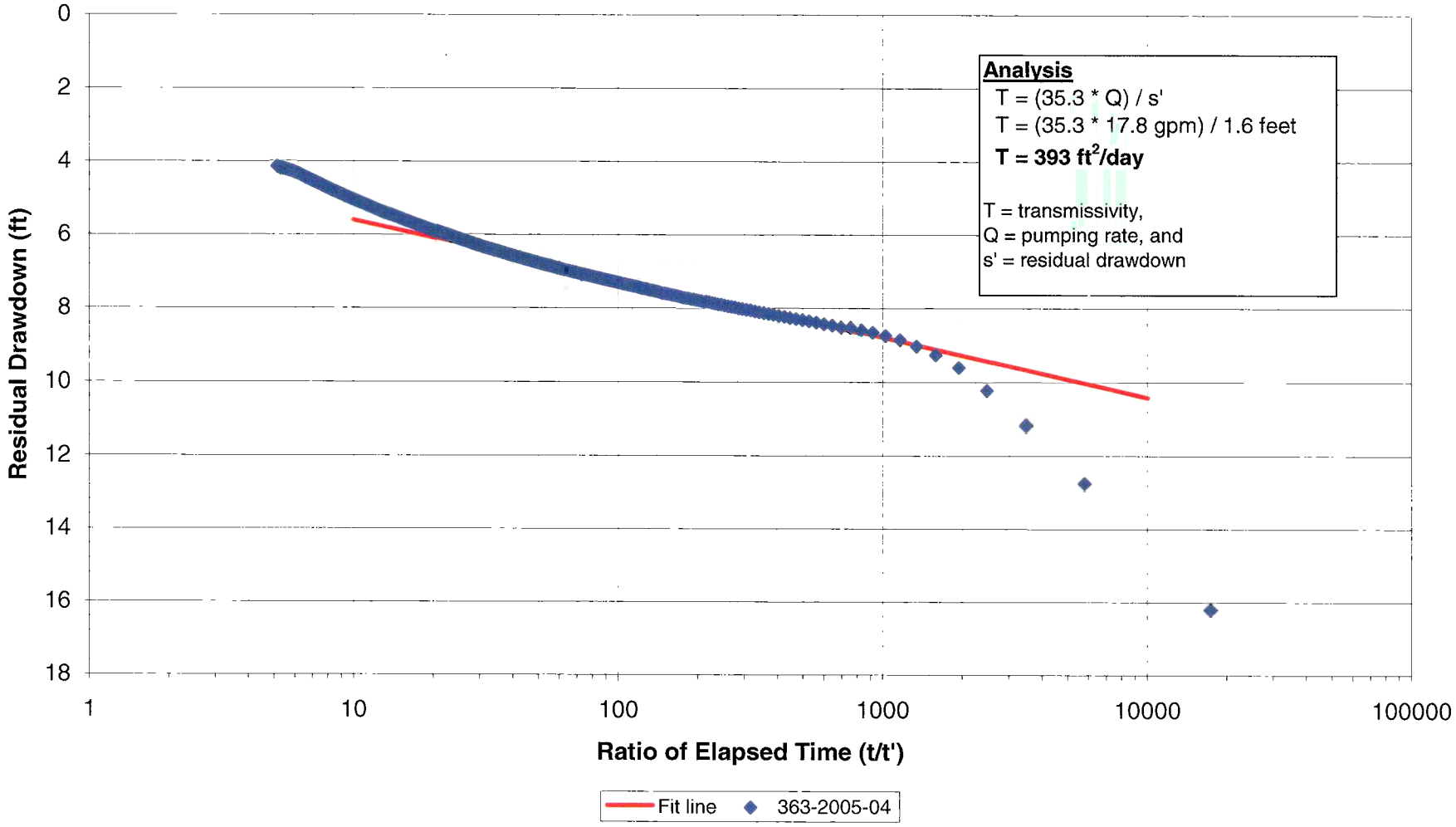
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

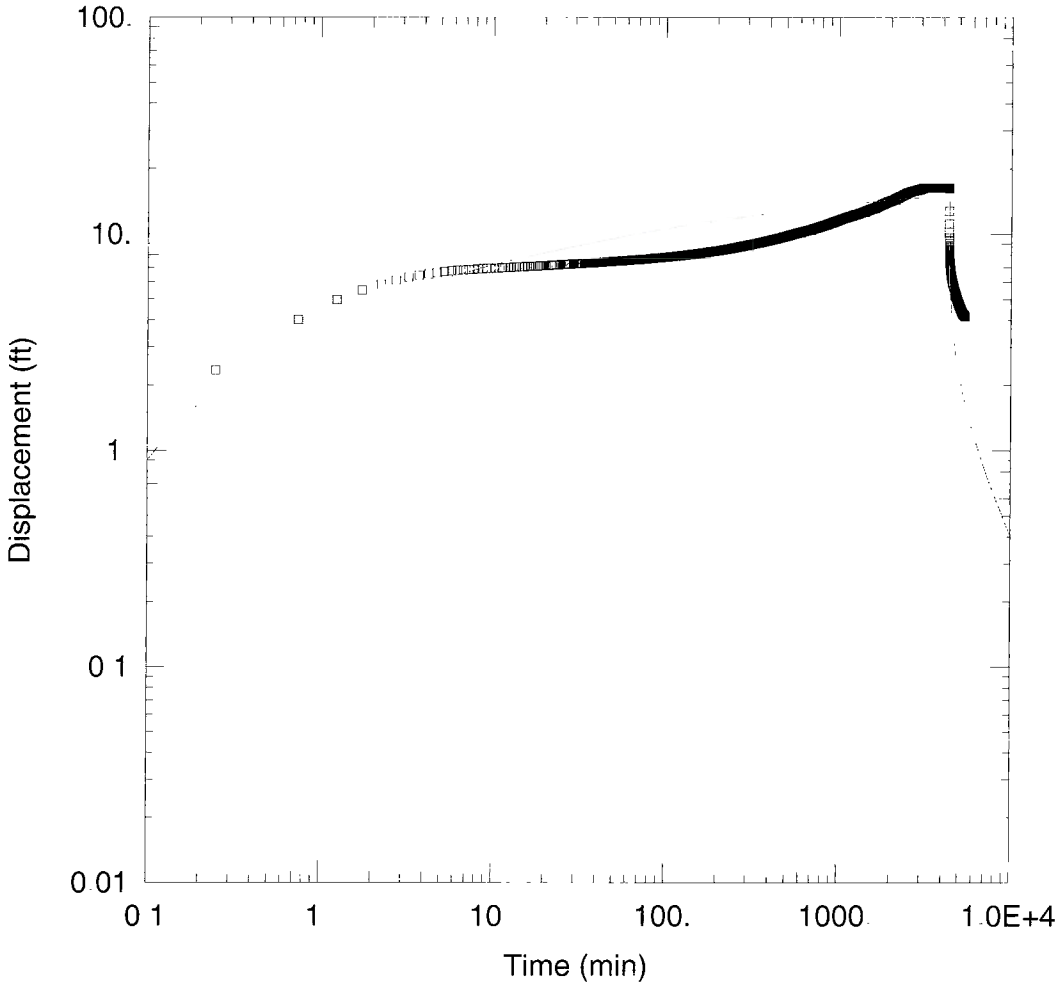
T = 336.1 ft^2/day
S = 0.03506
Kz/Kr = 1
b = 29.4 ft

Aquifer Test 363-2005-04:
Cooper-Jacob Analysis of Pumping Well 363-2005-04 Recovery Data

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\363-2005-04\363-2005-04_Analysis xls



AQUIFER TEST 363-2005-04. PUMPING WELL ANALYSIS

Data Set: M:\. \363-2005-04_Theis_Final.aqt
Date: 05/04/07 Time: 16:50:52

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project. LT05.0237
Location: Tyrone Mine Site
Test Well: 363-2005-04
Test Date: 11/11/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
363-2005-04	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
363-2005-04	0	0

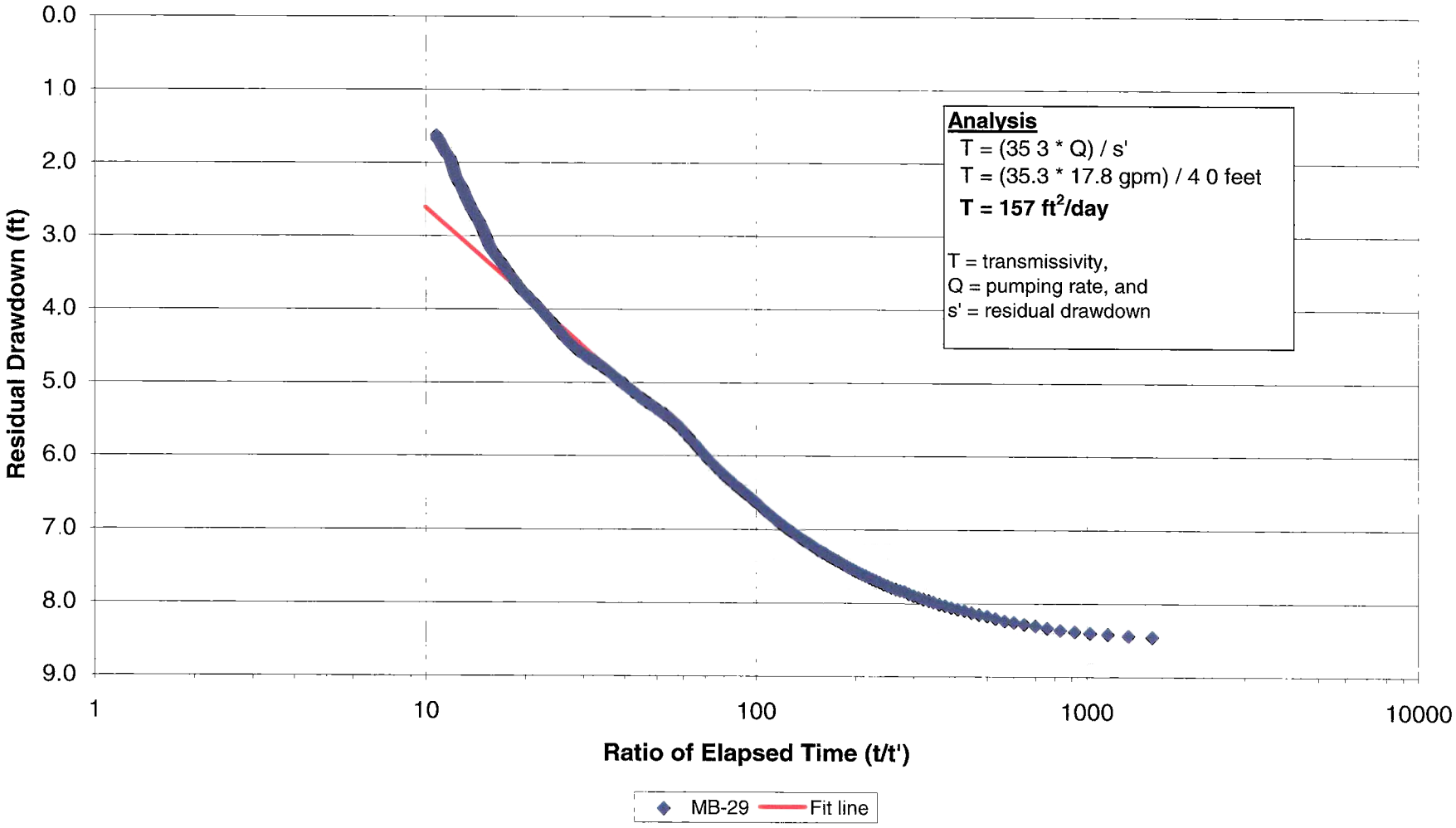
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

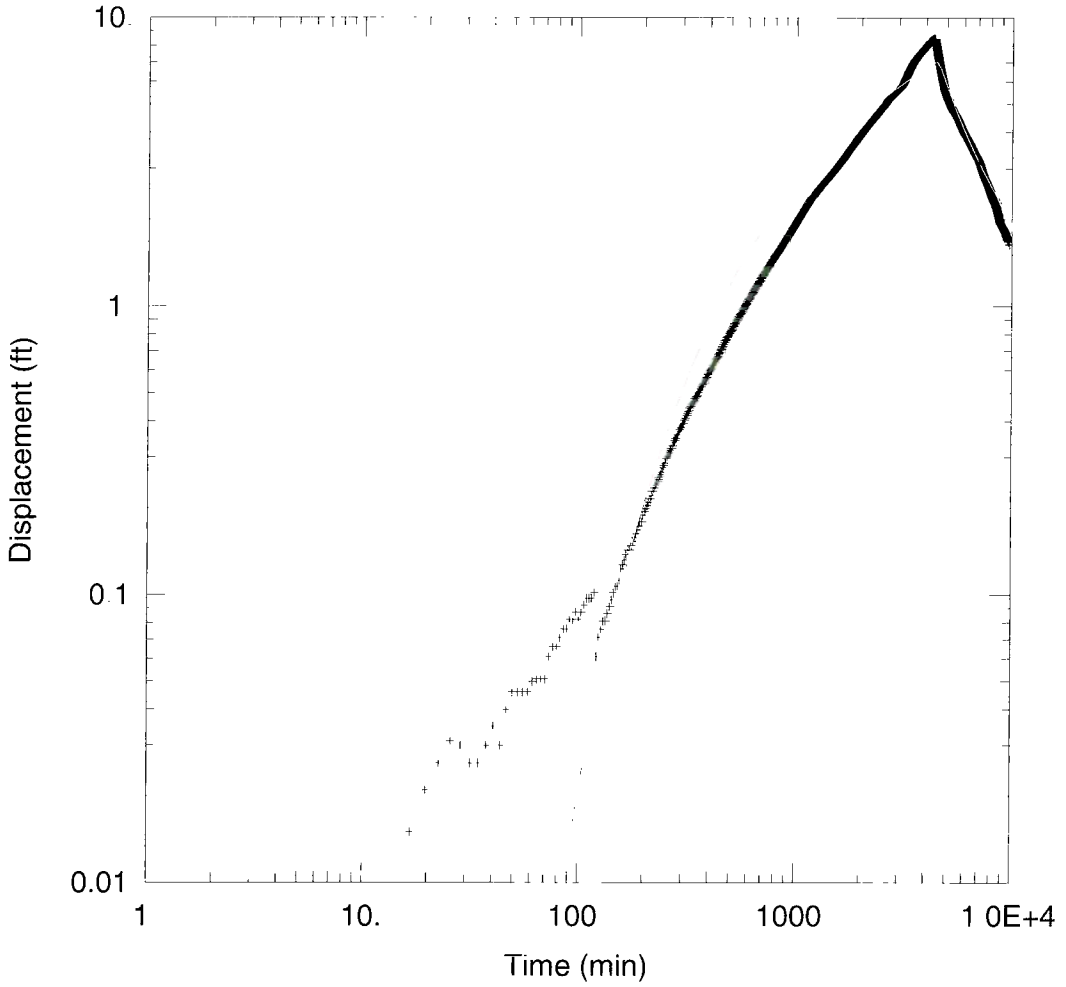
T = 738.3 ft^2/day
S = 0.5766
Kz/Kr = 0.1
b = 100. ft

Aquifer Test 363-2005-04:
Cooper-Jacob Analysis of Observation Well MB-29 Data

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\363-2005-04\MB-29_Analysis.xls



AQUIFER TEST 363-2005-04. OBSERVATION WELL ANALYSIS

Data Set: M:\...\MB-29 _363-2005-04_Theis_Final.aqt
Date: 05/04/07 Time: 16:51:55

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237
Location: Tyrone Mine Site
Test Well: 363-2005-04
Test Date: 11/11/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
363-2005-04	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
MB-29	0	54.27

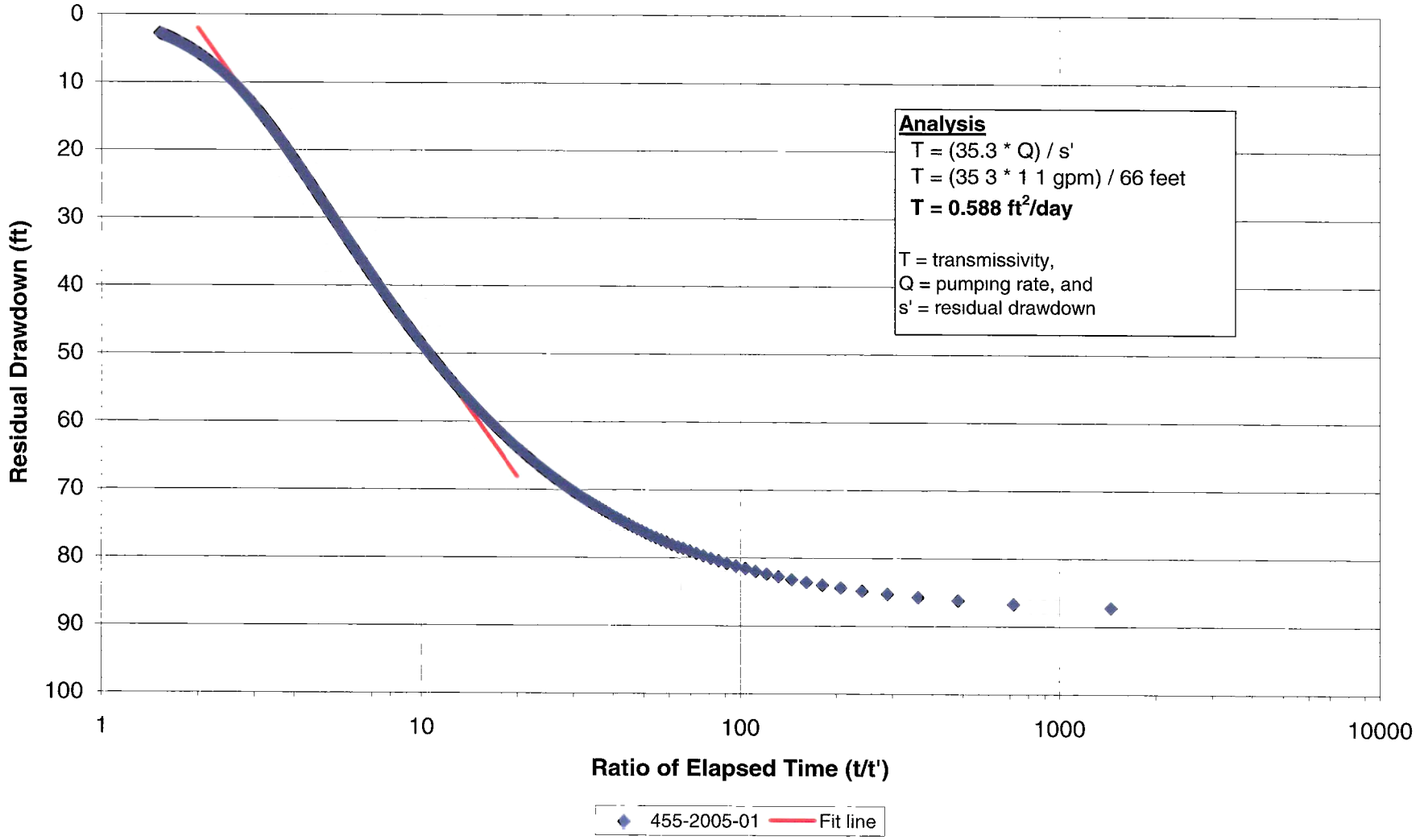
SOLUTION

Aquifer Model: Confined
Solution Method: Theis

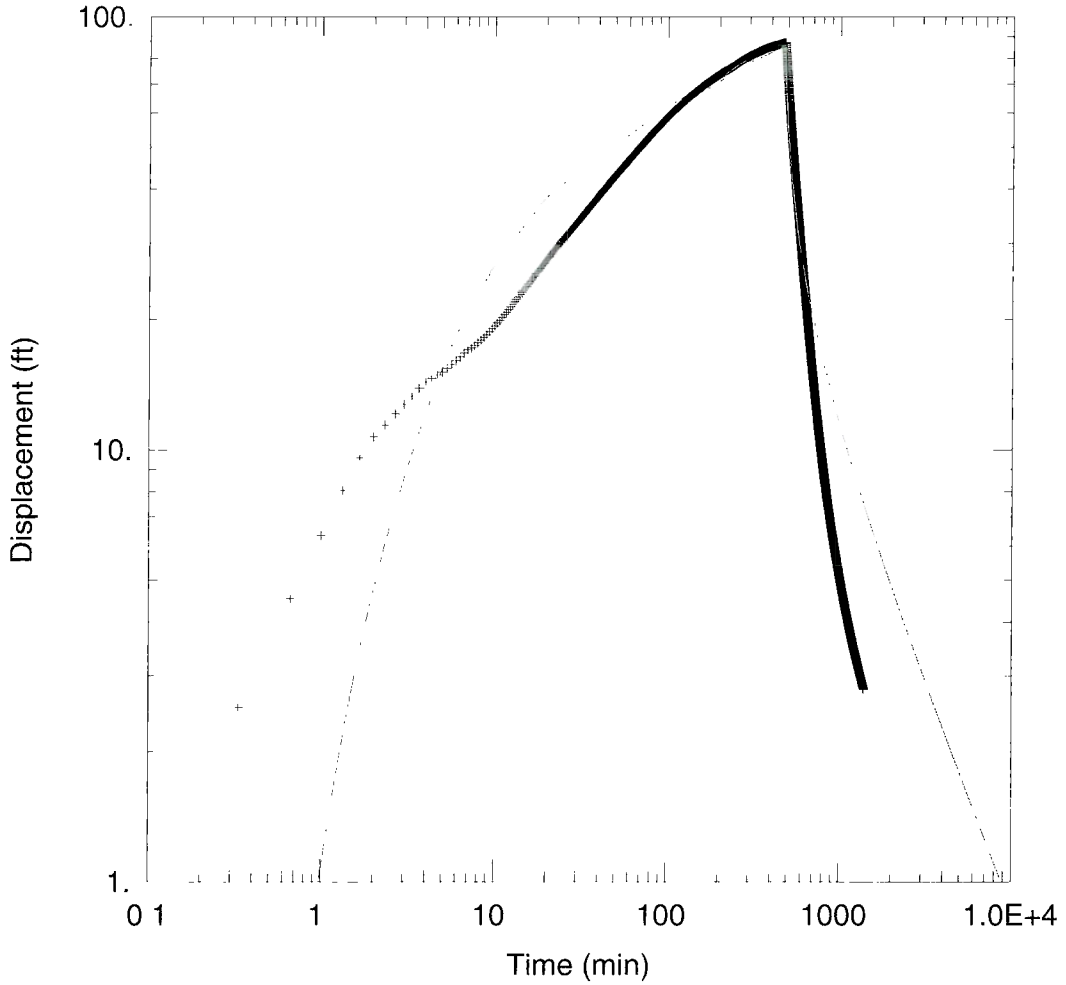
T = 74.39 ft^2/day
S = 0.02629
Kz/Kr = 0.1
b = 100. ft

Aquifer Test 455-2005-01: Cooper-Jacob Analysis

Phelps Dodge Tyrone, Inc.



M:\Projects\LT05.0237_Tyrone_DP-1341_Condition_82\Analysis\2005_AqfrTsts\455-2005-01\455-2005-01_Analysis.xls



455-2005-01 AQUIFER TEST

Data Set: M:\..\455-2005-01.aqt
Date: 05/04/07 Time: 17:08:34

PROJECT INFORMATION

Company: DBS&A
Client: PDTI
Project: LT05.0237.00
Location. 455-2005-01
Test Well. 455-2005-01
Test Date: 11/16/05

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
455-2005-01	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
455-2005-01	0	0

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 0.9274 ft^2/day
S = 0.03038
Kz/Kr = 1
b = 29.4 ft

Electronic Data Files

Files included on report CD in folder called Appendix B_Data Files.

Appendix C

Aquifer Test Water Quality Laboratory Results

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-27-2005-03
Sample Collected: 11/19/05 8:13
Sample Receipt : 11/22/05
Date of Report : 12/07/05

SVL JOB: 120131
SAMPLE: 483145
TOT/DIS

Matrix: WATERG

	Determination	Result	Units	Method	Analyzed
T	ALKALINITY	70.7	mg CaCO3/L	2320B	11/23/05
T	CO3, CaCO3	<1.00	mg CaCO3/L	2320B	11/23/05
T	HCO3, CaCO3	70.7	mg CaCO3/L	2320B	11/23/05
T	pH	6.37 @ 22°C		150.1	11/23/05
T	TDS	152	mg/L	160.1	11/23/05
T	Calcium	17.1	mg/L	200.7	12/06/05
T	Chloride	6.47	mg/L	300.0	11/30/05
T	Fluoride	1.88	mg/L	300.0	11/30/05
T	Potassium	2.12	mg/L	200.7	12/06/05
T	Magnesium	7.30	mg/L	200.7	12/06/05
T	Sodium	9.92	mg/L	200.7	12/06/05
T	Sulfate, SO4	11.3	mg/L	300.0	11/30/05
D	Aluminum	<0.0300	mg/L	200.7	12/06/05
D	Arsenic	<0.0250	mg/L	200.7	12/06/05
D	Cadmium	<0.00200	mg/L	200.7	12/06/05
D	Cobalt	<0.00600	mg/L	200.7	12/06/05
D	Chromium	<0.00600	mg/L	200.7	12/06/05
D	Copper	<0.0100	mg/L	200.7	12/06/05
D	Iron	0.0890	mg/L	200.7	12/06/05
D	Manganese	0.213	mg/L	200.7	12/06/05
D	Nickel	<0.0100	mg/L	200.7	12/06/05
D	Lead	<0.00750	mg/L	200.7	12/06/05
D	Zinc	0.146	mg/L	200.7	12/06/05

CalcTDS:	98.7	TDS/Cond:	CATION SUM:	1.94meq/L	BALANCE
TDS/CalcTDS:	1.5	CalcTDS/Cond:	ANION SUM:	1.93meq/L	0.26%

Filtered fraction: 483150
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 12/7/05
12/07/05 12:25

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-27-2005-04
Sample Collected: 11/18/05 11:13
Sample Receipt : 11/22/05
Date of Report : 12/07/05

SVL JOB: 120131
SAMPLE: 483144
TOT/DIS
Matrix: WATERG

	Determination	Result	Units	Method	Analyzed
T	ALKALINITY	210	mg CaCO3/L	2320B	11/23/05
T	CO3, CaCO3	<1.00	mg CaCO3/L	2320B	11/23/05
T	HCO3, CaCO3	210	mg CaCO3/L	2320B	11/23/05
T	pH	7.19 @ 22°C		150.1	11/23/05
T	TDS	301	mg/L	160.1	11/23/05
T	Calcium	26.3	mg/L	200.7	12/06/05
T	Chloride	13.4	mg/L	300.0	11/30/05
T	Fluoride	0.910	mg/L	300.0	11/30/05
T	Potassium	1.57	mg/L	200.7	12/06/05
T	Magnesium	1.20	mg/L	200.7	12/06/05
T	Sodium	73.3	mg/L	200.7	12/06/05
T	Sulfate, SO4	6.27	mg/L	300.0	11/30/05
D	Aluminum	<0.0300	mg/L	200.7	12/06/05
D	Arsenic	<0.0250	mg/L	200.7	12/06/05
D	Cadmium	<0.00200	mg/L	200.7	12/06/05
D	Cobalt	<0.00600	mg/L	200.7	12/06/05
D	Chromium	<0.00600	mg/L	200.7	12/06/05
D	Copper	<0.0100	mg/L	200.7	12/06/05
D	Iron	<0.0600	mg/L	200.7	12/06/05
D	Manganese	0.0136	mg/L	200.7	12/06/05
D	Nickel	<0.0100	mg/L	200.7	12/06/05
D	Lead	<0.00750	mg/L	200.7	12/06/05
D	Zinc	0.0130	mg/L	200.7	12/06/05

CalcTDS:	249	TDS/Cond:	CATION SUM:	4.64meq/L	BALANCE
TDS/CalcTDS:	1.2	CalcTDS/Cond:	ANION SUM:	4.76meq/L	-1.28%

Filtered fraction: 483149
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 12/7/05
12/07/05 12:25

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-286-2005-03
Sample Collected: 10/27/05 10:49
Sample Receipt : 11/02/05
Date of Report : 11/16/05

SVL JOB: 119805
SAMPLE: 479629
TOT/DIS

Matrix: WATERG

	Determination	Result	Units	Method	Analyzed
T	ALKALINITY	151	mg CaCO3/L	2320B	11/03/05
T	CO3, CaCO3	<1.00	mg CaCO3/L	2320B	11/03/05
T	HCO3, CaCO3	151	mg CaCO3/L	2320B	11/03/05
T	pH	6.96 @ 22°C		150.1	11/03/05
T	TDS	311	mg/L	160.1	11/03/05
T	Calcium	74.0	mg/L	200.7	11/15/05
T	Chloride	18.6	mg/L	300.0	11/09/05
T	Fluoride	0.240	mg/L	300.0	11/09/05
T	Potassium	2.17	mg/L	200.7	11/15/05
T	Magnesium	6.39	mg/L	200.7	11/15/05
T	Sodium	10.7	mg/L	200.7	11/15/05
T	Sulfate, SO4	48.3	mg/L	300.0	11/09/05
D	Aluminum	<0.0300	mg/L	200.7	11/15/05
D	Arsenic	<0.0250	mg/L	200.7	11/15/05
D	Cadmium	<0.00200	mg/L	200.7	11/15/05
D	Cobalt	<0.00600	mg/L	200.7	11/15/05
D	Chromium	<0.00600	mg/L	200.7	11/15/05
D	Copper	<0.0100	mg/L	200.7	11/15/05
D	Iron	<0.0600	mg/L	200.7	11/15/05
D	Manganese	0.00720	mg/L	200.7	11/15/05
D	Nickel	<0.0100	mg/L	200.7	11/15/05
D	Lead	<0.00750	mg/L	200.7	11/15/05
D	Zinc	0.0270	mg/L	200.7	11/15/05

CalcTDS:	251	TDS/Cond:	CATION SUM:	4.75meq/L	BALANCE
TDS/CalcTDS:	1.2	CalcTDS/Cond:	ANION SUM:	4.56meq/L	2.04%

Filtered fraction: 479632
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/16/05

11/16/05 15:20

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-2005-01
Sample Collected: 11/17/05 11:49
Sample Receipt : 11/22/05
Date of Report : 12/07/05

SVL JOB: 120131
SAMPLE: 483142
TOT/DIS

Matrix: WATERG

	Determination	Result	Units	Method	Analyzed
T	ALKALINITY	109	mg CaCO3/L	2320B	11/23/05
T	CO3, CaCO3	<1.00	mg CaCO3/L	2320B	11/23/05
T	HCO3, CaCO3	109	mg CaCO3/L	2320B	11/23/05
T	pH	6.59 @ 22°C		150.1	11/23/05
T	TDS	204	mg/L	160.1	11/23/05
T	Calcium	29.3	mg/L	200.7	12/06/05
T	Chloride	7.14	mg/L	300.0	11/30/05
T	Fluoride	0.640	mg/L	300.0	11/30/05
T	Potassium	1.55	mg/L	200.7	12/06/05
T	Magnesium	6.22	mg/L	200.7	12/06/05
T	Sodium	16.3	mg/L	200.7	12/06/05
T	Sulfate, SO4	14.0	mg/L	300.0	11/30/05
D	Aluminum	<0.0300	mg/L	200.7	12/06/05
D	Arsenic	<0.0250	mg/L	200.7	12/06/05
D	Cadmium	<0.00200	mg/L	200.7	12/06/05
D	Cobalt	<0.00600	mg/L	200.7	12/06/05
D	Chromium	<0.00600	mg/L	200.7	12/06/05
D	Copper	<0.0100	mg/L	200.7	12/06/05
D	Iron	0.119	mg/L	200.7	12/06/05
D	Manganese	0.0564	mg/L	200.7	12/06/05
D	Nickel	<0.0100	mg/L	200.7	12/06/05
D	Lead	<0.00750	mg/L	200.7	12/06/05
D	Zinc	0.0320	mg/L	200.7	12/06/05

CalcTDS:	141	TDS/Cond:	CATION SUM:	2.72meq/L	BALANCE
TDS/CalcTDS:	1.4	CalcTDS/Cond:	ANION SUM:	2.70meq/L	0.37%

Filtered fraction: 483147
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 12/7/05
12/07/05 12:25

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-2005-02/A
Sample Collected: 10/28/05 14:05
Sample Receipt : 11/02/05
Date of Report : 11/16/05

SVL JOB: 119805
SAMPLE: 479630
TOT/DIS
Matrix: WATERG

	Determination	Result	Units	Method	Analyzed
T	ALKALINITY	110	mg CaCO3/L	2320B	11/03/05
T	CO3, CaCO3	<1.00	mg CaCO3/L	2320B	11/03/05
T	HCO3, CaCO3	110	mg CaCO3/L	2320B	11/03/05
T	pH	6.46 @ 21°C		150.1	11/03/05
T	TDS	582	mg/L	160.1	11/03/05
T	Calcium	123	mg/L	200.7	11/15/05
T	Chloride	7.40	mg/L	300.0	11/09/05
T	Fluoride	1.01	mg/L	300.0	11/09/05
T	Potassium	2.39	mg/L	200.7	11/15/05
T	Magnesium	13.8	mg/L	200.7	11/15/05
T	Sodium	26.8	mg/L	200.7	11/15/05
T	Sulfate, SO4	287	mg/L	300.0	11/10/05
D	Aluminum	<0.0300	mg/L	200.7	11/15/05
D	Arsenic	<0.0250	mg/L	200.7	11/15/05
D	Cadmium	<0.00200	mg/L	200.7	11/15/05
D	Cobalt	<0.00600	mg/L	200.7	11/15/05
D	Chromium	<0.00600	mg/L	200.7	11/15/05
D	Copper	<0.0100	mg/L	200.7	11/15/05
D	Iron	<0.0600	mg/L	200.7	11/15/05
D	Manganese	0.0342	mg/L	200.7	11/15/05
D	Nickel	<0.0100	mg/L	200.7	11/15/05
D	Lead	<0.00750	mg/L	200.7	11/15/05
D	Zinc	0.0340	mg/L	200.7	11/15/05

CalcTDS:	527	TDS/Cond:	CATION SUM:	8.51meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	8.44meq/L	0.41%

Filtered fraction: 479633
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/16/05
11/16/05 15:21

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-2005-02/B
Sample Collected: 10/28/05 18:43
Sample Receipt : 11/02/05
Date of Report : 11/16/05

SVL JOB: 119805
SAMPLE: 479631
TOT/DIS
Matrix: WATERG

	Determination	Result	Units	Method	Analyzed
T	ALKALINITY	107	mg CaCO3/L	2320B	11/03/05
T	CO3, CaCO3	<1.00	mg CaCO3/L	2320B	11/03/05
T	HCO3, CaCO3	107	mg CaCO3/L	2320B	11/03/05
T	pH	6.46 @ 21°C		150.1	11/03/05
T	TDS	607	mg/L	160.1	11/03/05
T	Calcium	126	mg/L	200.7	11/15/05
T	Chloride	7.56	mg/L	300.0	11/09/05
T	Fluoride	1.07	mg/L	300.0	11/09/05
T	Potassium	2.49	mg/L	200.7	11/15/05
T	Magnesium	14.2	mg/L	200.7	11/15/05
T	Sodium	27.8	mg/L	200.7	11/15/05
T	Sulfate, SO4	297	mg/L	300.0	11/10/05
D	Aluminum	<0.0300	mg/L	200.7	11/15/05
D	Arsenic	<0.0250	mg/L	200.7	11/15/05
D	Cadmium	<0.00200	mg/L	200.7	11/15/05
D	Cobalt	<0.00600	mg/L	200.7	11/15/05
D	Chromium	<0.00600	mg/L	200.7	11/15/05
D	Copper	<0.0100	mg/L	200.7	11/15/05
D	Iron	<0.0600	mg/L	200.7	11/15/05
D	Manganese	0.0215	mg/L	200.7	11/15/05
D	Nickel	<0.0100	mg/L	200.7	11/15/05
D	Lead	<0.00750	mg/L	200.7	11/15/05
D	Zinc	0.0250	mg/L	200.7	11/15/05

CalcTDS:	540	TDS/Cond:	CATION SUM:	8.73meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	8.59meq/L	0.81%

Filtered fraction: 479634
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/16/05
11/16/05 15:21

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-2005-03/A
Sample Collected: 11/08/05 16:35
Sample Receipt : 11/11/05
Date of Report : 11/23/05

SVL JOB: 119967
SAMPLE: 481256
TOT/DIS

Matrix: WATERG

	Determination	Result	Units	Dilution	Method	Analyzed
T	ALKALINITY	115	mg CaCO3/L		2320B	11/14/05
T	CO3, CaCO3	<1.00	mg CaCO3/L		2320B	11/14/05
T	HCO3, CaCO3	115	mg CaCO3/L		2320B	11/14/05
T	pH	6.78 @ 22°C			150.1	11/14/05
T	TDS	580	mg/L		160.1	11/14/05
T	Calcium	115	mg/L		200.7	11/22/05
T	Chloride	8.05	mg/L		300.0	11/17/05
T	Fluoride	1.24	mg/L		300.0	11/17/05
T	Potassium	2.21	mg/L		200.7	11/22/05
T	Magnesium	12.9	mg/L		200.7	11/22/05
T	Sodium	27.7	mg/L		200.7	11/22/05
T	Sulfate, SO4	283	mg/L	10	300.0	11/17/05
D	Aluminum	<0.0300	mg/L		200.7	11/22/05
D	Arsenic	<0.0250	mg/L		200.7	11/22/05
D	Cadmium	<0.00200	mg/L		200.7	11/22/05
D	Cobalt	<0.00600	mg/L		200.7	11/22/05
D	Chromium	<0.00600	mg/L		200.7	11/22/05
D	Copper	<0.0100	mg/L		200.7	11/22/05
D	Iron	0.497	mg/L		200.7	11/22/05
D	Manganese	0.0101	mg/L		200.7	11/22/05
D	Nickel	<0.0100	mg/L		200.7	11/22/05
D	Lead	<0.00750	mg/L		200.7	11/22/05
D	Zinc	0.0590	mg/L		200.7	11/22/05

CalcTDS:	520	TDS/Cond:	CATION SUM:	8.08meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	8.49meq/L	-2.47%

Filtered fraction: 481259
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/23/05

11/23/05 10:08

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0893

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-2005-03/B
Sample Collected: 11/10/05 8:20
Sample Receipt : 11/11/05
Date of Report : 11/23/05

SVL JOB: 119967
SAMPLE: 481257
TOT/DIS
Matrix: WATERG

	Determination	Result	Units	Dilution	Method	Analyzed
T	ALKALINITY	117	mg CaCO3/L		2320B	11/14/05
T	CO3, CaCO3	<1.00	mg CaCO3/L		2320B	11/14/05
T	HCO3, CaCO3	117	mg CaCO3/L		2320B	11/14/05
T	pH	6.83 @ 22°C			150.1	11/14/05
T	TDS	571	mg/L		160.1	11/14/05
T	Calcium	114	mg/L		200.7	11/22/05
T	Chloride	7.98	mg/L		300.0	11/17/05
T	Fluoride	1.22	mg/L		300.0	11/17/05
T	Potassium	2.19	mg/L		200.7	11/22/05
T	Magnesium	12.6	mg/L		200.7	11/22/05
T	Sodium	26.9	mg/L		200.7	11/22/05
T	Sulfate, SO4	284	mg/L	10	300.0	11/17/05
D	Aluminum	<0.0300	mg/L		200.7	11/22/05
D	Arsenic	<0.0250	mg/L		200.7	11/22/05
D	Cadmium	<0.00200	mg/L		200.7	11/22/05
D	Cobalt	<0.00600	mg/L		200.7	11/22/05
D	Chromium	<0.00600	mg/L		200.7	11/22/05
D	Copper	<0.0100	mg/L		200.7	11/22/05
D	Iron	0.331	mg/L		200.7	11/22/05
D	Manganese	0.0125	mg/L		200.7	11/22/05
D	Nickel	<0.0100	mg/L		200.7	11/22/05
D	Lead	<0.00750	mg/L		200.7	11/22/05
D	Zinc	0.0450	mg/L		200.7	11/22/05

CalcTDS:	519	TDS/Cond:	CATION SUM: 7.97meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM: 8.54meq/L	-3.45%

Filtered fraction: 481260
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/23/05
11/23/05 10:08

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-2005-04/A
Sample Collected: 11/11/05 15:08
Sample Receipt : 11/17/05
Date of Report : 11/30/05

SVL JOB: 120068
SAMPLE: 482381
TOT/DIS
Matrix: WATERG

	Determination	Result	Units	Dilution	Method	Analyzed
T	ALKALINITY	78.1	mg CaCO3/L		2320B	11/18/05
T	CO3, CaCO3	<1.00	mg CaCO3/L		2320B	11/18/05
T	HCO3, CaCO3	78.1	mg CaCO3/L		2320B	11/18/05
T	pH	6.45 @ 20°C			150.1	11/18/05
T	TDS	1340	mg/L		160.1	11/18/05
T	Calcium	266	mg/L		200.7	11/30/05
T	Chloride	13.4	mg/L	2	300.0	11/22/05
T	Fluoride	0.480	mg/L	2	300.0	11/22/05
T	Potassium	3.65	mg/L		200.7	11/30/05
T	Magnesium	42.6	mg/L		200.7	11/30/05
T	Sodium	45.7	mg/L		200.7	11/30/05
T	Sulfate, SO4	795	mg/L	50	300.0	11/21/05
D	Aluminum	<0.0300	mg/L		200.7	11/30/05
D	Arsenic	<0.0250	mg/L		200.7	11/30/05
D	Cadmium	<0.00200	mg/L		200.7	11/30/05
D	Cobalt	<0.00600	mg/L		200.7	11/30/05
D	Chromium	<0.00600	mg/L		200.7	11/30/05
D	Copper	<0.0100	mg/L		200.7	11/30/05
D	Iron	0.927	mg/L		200.7	11/30/05
D	Manganese	0.00970	mg/L		200.7	11/30/05
D	Nickel	<0.0100	mg/L		200.7	11/30/05
D	Lead	<0.00750	mg/L		200.7	11/30/05
D	Zinc	0.0250	mg/L		200.7	11/30/05

CalcTDS:	1210	TDS/Cond:	CATION SUM: 18.89meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM: 18.52meq/L	0.99%

Filtered fraction: 482385
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/30/05
11/30/05 13:48

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-2005-04/B
Sample Collected: 11/14/05 14:02
Sample Receipt : 11/17/05
Date of Report : 11/30/05

SVL JOB: 120068
SAMPLE: 482382
TOT/DIS

Matrix: WATERG

	Determination	Result	Units	Dilution	Method	Analyzed
T	ALKALINITY	77.8	mg CaCO3/L		2320B	11/18/05
T	CO3, CaCO3	<1.00	mg CaCO3/L		2320B	11/18/05
T	HCO3, CaCO3	77.8	mg CaCO3/L		2320B	11/18/05
T	pH	6.48 @ 20°C			150.1	11/18/05
T	TDS	1320	mg/L		160.1	11/18/05
T	Calcium	267	mg/L		200.7	11/30/05
T	Chloride	13.3	mg/L	2	300.0	11/22/05
T	Fluoride	0.480	mg/L	2	300.0	11/22/05
T	Potassium	3.57	mg/L		200.7	11/30/05
T	Magnesium	41.8	mg/L		200.7	11/30/05
T	Sodium	45.0	mg/L		200.7	11/30/05
T	Sulfate, SO4	794	mg/L	50	300.0	11/21/05
D	Aluminum	<0.0300	mg/L		200.7	11/30/05
D	Arsenic	<0.0250	mg/L		200.7	11/30/05
D	Cadmium	<0.00200	mg/L		200.7	11/30/05
D	Cobalt	<0.00600	mg/L		200.7	11/30/05
D	Chromium	<0.00600	mg/L		200.7	11/30/05
D	Copper	<0.0100	mg/L		200.7	11/30/05
D	Iron	0.611	mg/L		200.7	11/30/05
D	Manganese	<0.00400	mg/L		200.7	11/30/05
D	Nickel	<0.0100	mg/L		200.7	11/30/05
D	Lead	<0.00750	mg/L		200.7	11/30/05
D	Zinc	0.0160	mg/L		200.7	11/30/05

CalcTDS:	1210	TDS/Cond:	CATION SUM:	18.83meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	18.49meq/L	0.91%

Filtered fraction: 482386
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/30/05
11/30/05 15:27

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-383-2005-02
Sample Collected: 11/07/05 14:10
Sample Receipt : 11/11/05
Date of Report : 11/23/05

SVL JOB: 119967
SAMPLE: 481255
TOT/DIS
Matrix: WATERG

	Determination	Result	Units	Dilution	Method	Analyzed
T	ALKALINITY	125	mg CaCO3/L		2320B	11/14/05
T	CO3, CaCO3	<1.00	mg CaCO3/L		2320B	11/14/05
T	HCO3, CaCO3	125	mg CaCO3/L		2320B	11/14/05
T	pH	6.73 @ 22°C			150.1	11/14/05
T	TDS	212	mg/L		160.1	11/14/05
T	Calcium	37.4	mg/L		200.7	11/22/05
T	Chloride	16.3	mg/L	2	300.0	11/17/05
T	Fluoride	0.240	mg/L		300.0	11/17/05
T	Potassium	2.91	mg/L		200.7	11/22/05
T	Magnesium	5.74	mg/L		200.7	11/22/05
T	Sodium	14.7	mg/L		200.7	11/22/05
T	Sulfate, SO4	9.47	mg/L		300.0	11/17/05
D	Aluminum	<0.0300	mg/L		200.7	11/22/05
D	Arsenic	<0.0250	mg/L		200.7	11/22/05
D	Cadmium	<0.00200	mg/L		200.7	11/22/05
D	Cobalt	<0.00600	mg/L		200.7	11/22/05
D	Chromium	<0.00600	mg/L		200.7	11/22/05
D	Copper	<0.0100	mg/L		200.7	11/22/05
D	Iron	0.135	mg/L		200.7	11/22/05
D	Manganese	0.0394	mg/L		200.7	11/22/05
D	Nickel	<0.0100	mg/L		200.7	11/22/05
D	Lead	<0.00750	mg/L		200.7	11/22/05
D	Zinc	0.0370	mg/L		200.7	11/22/05

CalcTDS:	162	TDS/Cond:	CATION SUM:	3.05meq/L	BALANCE
TDS/CalcTDS:	1.3	CalcTDS/Cond:	ANION SUM:	3.17meq/L	-1.93%

Filtered fraction: 481258
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/23/05
11/23/05 10:08

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-455-2005-01/A
Sample Collected: 11/16/05 11:36
Sample Receipt : 11/17/05
Date of Report : 11/30/05

SVL JOB: 120068
SAMPLE: 482384
TOT/DIS
Matrix: WATERG

	Determination	Result	Units	Dilution	Method	Analyzed
T	ALKALINITY	91.4	mg CaCO3/L		2320B	11/18/05
T	CO3, CaCO3	<1.00	mg CaCO3/L		2320B	11/18/05
T	HCO3, CaCO3	91.4	mg CaCO3/L		2320B	11/18/05
T	pH	6.29 @ 20°C			150.1	11/18/05
T	TDS	278	mg/L		160.1	11/18/05
T	Calcium	42.6	mg/L		200.7	11/30/05
T	Chloride	5.70	mg/L		300.0	11/22/05
T	Fluoride	3.57	mg/L		300.0	11/22/05
T	Potassium	6.52	mg/L		200.7	11/30/05
T	Magnesium	9.01	mg/L		200.7	11/30/05
T	Sodium	25.6	mg/L		200.7	11/30/05
T	Sulfate, SO4	57.5	mg/L	5	300.0	11/22/05
D	Aluminum	<0.0300	mg/L		200.7	11/30/05
D	Arsenic	<0.0250	mg/L		200.7	11/30/05
D	Cadmium	<0.00200	mg/L		200.7	11/30/05
D	Cobalt	<0.00600	mg/L		200.7	11/30/05
D	Chromium	<0.00600	mg/L		200.7	11/30/05
D	Copper	<0.0100	mg/L		200.7	11/30/05
D	Iron	14.3	mg/L		200.7	11/30/05
D	Manganese	3.60	mg/L		200.7	11/30/05
D	Nickel	<0.0100	mg/L		200.7	11/30/05
D	Lead	<0.00750	mg/L		200.7	11/30/05
D	Zinc	0.593	mg/L		200.7	11/30/05

CalcTDS:	220	TDS/Cond:	CATION SUM:	4.81meq/L	BALANCE
TDS/CalcTDS:	1.3	CalcTDS/Cond:	ANION SUM:	3.38meq/L	17.46%

Filtered fraction: 482388
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/30/05
11/30/05 15:27

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: DP-455-2005-01/B
Sample Collected: 11/16/05 18:17
Sample Receipt : 11/22/05
Date of Report : 12/07/05

SVL JOB: 120131
SAMPLE: 483141
TOT/DIS
Matrix: WATERG

	Determination	Result	Units	Method	Analyzed
T	ALKALINITY	95.3	mg CaCO3/L	2320B	11/23/05
T	CO3, CaCO3	<1.00	mg CaCO3/L	2320B	11/23/05
T	HCO3, CaCO3	95.3	mg CaCO3/L	2320B	11/23/05
T	pH	6.26 @ 21°C		150.1	11/23/05
T	TDS	333	mg/L	160.1	11/23/05
T	Calcium	44.2	mg/L	200.7	12/06/05
T	Chloride	5.30	mg/L	300.0	11/30/05
T	Fluoride	3.45	mg/L	300.0	11/30/05
T	Potassium	6.75	mg/L	200.7	12/06/05
T	Magnesium	9.35	mg/L	200.7	12/06/05
T	Sodium	26.5	mg/L	200.7	12/06/05
T	Sulfate, SO4	114	mg/L	300.0	11/30/05
D	Aluminum	<0.0300	mg/L	200.7	12/06/05
D	Arsenic	<0.0250	mg/L	200.7	12/06/05
D	Cadmium	<0.00200	mg/L	200.7	12/06/05
D	Cobalt	0.00800	mg/L	200.7	12/06/05
D	Chromium	<0.00600	mg/L	200.7	12/06/05
D	Copper	<0.0100	mg/L	200.7	12/06/05
D	Iron	15.1	mg/L	200.7	12/06/05
D	Manganese	4.45	mg/L	200.7	12/06/05
D	Nickel	0.0120	mg/L	200.7	12/06/05
D	Lead	<0.00750	mg/L	200.7	12/06/05
D	Zinc	0.782	mg/L	200.7	12/06/05

CalcTDS:	283	TDS/Cond:	CATION SUM:	5.02meq/L	BALANCE
TDS/CalcTDS:	1.2	CalcTDS/Cond:	ANION SUM:	4.60meq/L	4.37%

Filtered fraction: 483146
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 12/7/05
12/07/05 12:25

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: MB-29
Sample Collected: 11/18/05 9:20
Sample Receipt : 11/22/05
Date of Report : 12/07/05

SVL JOB: 120131
SAMPLE: 483143
TOT/DIS

Matrix: WATERG

	Determination	Result	Units	Method	Analyzed
T	ALKALINITY	75.8	mg CaCO3/L	2320B	11/23/05
T	CO3, CaCO3	<1.00	mg CaCO3/L	2320B	11/23/05
T	HCO3, CaCO3	75.8	mg CaCO3/L	2320B	11/23/05
T	pH	6.55 @ 21°C		150.1	11/23/05
T	TDS	1370	mg/L	160.1	11/23/05
T	Calcium	274	mg/L	200.7	12/06/05
T	Chloride	13.4	mg/L	300.0	11/30/05
T	Fluoride	0.580	mg/L	300.0	11/30/05
T	Potassium	3.61	mg/L	200.7	12/06/05
T	Magnesium	44.5	mg/L	200.7	12/06/05
T	Sodium	46.4	mg/L	200.7	12/06/05
T	Sulfate, SO4	820	mg/L	300.0	11/30/05
D	Aluminum	<0.0300	mg/L	200.7	12/06/05
D	Arsenic	<0.0250	mg/L	200.7	12/06/05
D	Cadmium	<0.00200	mg/L	200.7	12/06/05
D	Cobalt	<0.00600	mg/L	200.7	12/06/05
D	Chromium	<0.00600	mg/L	200.7	12/06/05
D	Copper	<0.0100	mg/L	200.7	12/06/05
D	Iron	<0.0600	mg/L	200.7	12/06/05
D	Manganese	0.0102	mg/L	200.7	12/06/05
D	Nickel	<0.0100	mg/L	200.7	12/06/05
D	Lead	<0.00750	mg/L	200.7	12/06/05
D	Zinc	0.0590	mg/L	200.7	12/06/05

CalcTDS:	1250	TDS/Cond:	CATION SUM:	19.44meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	18.99meq/L	1.17%

Filtered fraction: 483148
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 12/7/05
12/07/05 12:25

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : DANIEL B. STEPHENS
PROJECT: Y06976
CLIENT SAMPLE ID: MB-42
Sample Collected: 11/15/05 12:15
Sample Receipt : 11/17/05
Date of Report : 11/30/05

SVL JOB: 120068
SAMPLE: 482383
TOT/DIS

Matrix: WATERG

	Determination	Result	Units	Dilution	Method	Analyzed
T	ALKALINITY	118	mg CaCO3/L		2320B	11/18/05
T	CO3, CaCO3	<1.00	mg CaCO3/L		2320B	11/18/05
T	HCO3, CaCO3	118	mg CaCO3/L		2320B	11/18/05
T	pH	6.82 @ 20°C			150.1	11/18/05
T	TDS	779	mg/L		160.1	11/18/05
T	Calcium	163	mg/L		200.7	11/30/05
T	Chloride	8.54	mg/L		300.0	11/22/05
T	Fluoride	1.17	mg/L		300.0	11/22/05
T	Potassium	3.32	mg/L		200.7	11/30/05
T	Magnesium	17.9	mg/L		200.7	11/30/05
T	Sodium	32.1	mg/L		200.7	11/30/05
T	Sulfate, SO4	396	mg/L	25	300.0	11/21/05
D	Aluminum	<0.0300	mg/L		200.7	11/30/05
D	Arsenic	<0.0250	mg/L		200.7	11/30/05
D	Cadmium	<0.00200	mg/L		200.7	11/30/05
D	Cobalt	<0.00600	mg/L		200.7	11/30/05
D	Chromium	<0.00600	mg/L		200.7	11/30/05
D	Copper	<0.0100	mg/L		200.7	11/30/05
D	Iron	<0.0600	mg/L		200.7	11/30/05
D	Manganese	0.569	mg/L		200.7	11/30/05
D	Nickel	<0.0100	mg/L		200.7	11/30/05
D	Lead	<0.00750	mg/L		200.7	11/30/05
D	Zinc	<0.0100	mg/L		200.7	11/30/05

CalcTDS:	693	TDS/Cond:	CATION SUM: 11.10meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM: 10.90meq/L	0.91%

Filtered fraction: 482387
Tests:CHINO - TABLE 1

Reviewed By: _____ Date 11/30/05
11/30/05 15:27

AZ: AZ0538 CA: NO. 2080 CO: 9/1/05 ID: ID00019 MT: 6/6/05 NV: 7/08/05 WA: C1268

Appendix D

SPLP Test Results for Borings 363-2005-B1 and 363-2005-B2

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B1(5.0-6.5)
Sample Collected: 8/18/05 9:10
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465566
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	29.1	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	29.1	mg CaCO3/L	2320B	9/07/05
pH	6.38 @ 22°C		150.1	9/07/05
TDS	137	mg/L Ext	160.1	9/06/05
Calcium	1.07	mg/L Ext	6010B	9/11/05
Chloride	2.03	mg/L Ext	300.0	9/06/05
Fluoride	0.38	mg/L Ext	300.0	9/06/05
Potassium	0.87	mg/L Ext	6010B	9/11/05
Magnesium	0.558	mg/L Ext	6010B	9/11/05
Sodium	13.8	mg/L Ext	6010B	9/11/05
Sulfate, SO4	2.38	mg/L Ext	300.0	9/06/05
Aluminum	4.11	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	<0.0020	mg/L Ext	6010B	9/11/05
Cobalt	<0.0060	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	0.108	mg/L Ext	6010B	9/11/05
Iron	3.13	mg/L Ext	6010B	9/11/05
Manganese	0.0425	mg/L Ext	6010B	9/11/05
Nickel	<0.010	mg/L Ext	6010B	9/11/05
Lead	0.0129	mg/L Ext	6010B	9/11/05
Zinc	0.058	mg/L Ext	6010B	9/11/05

CalcTDS:	46.0	TDS/Cond:	CATION SUM:	1.29meq/L	BALANCE
TDS/CalcTDS:	3.0	CalcTDS/Cond:	ANION SUM:	0.71meq/L	29.00%

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 13:06

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC. Certificate: ID IDCCC-E
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-CEE

CLIENT : PHELPS DODGE - TYRONE — SVL JOB: 118559
PROJECT: Y06976 — SAMPLE: 465567
CLIENT SAMPLE ID: DP-363-B1(10.0-11.5)
Sample Collected: 8/18/05 9:22
Sample Receipt : 8/24/05 — Matrix: ESOIL
Date of Report : 9/12/05 — Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	2.5	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	2.5	mg CaCO3/L	2320B	9/07/05
pH	5.34 @ 22°C		150.1	9/07/05
TDS	18	mg/L Ext	160.1	9/06/05
Calcium	3.17	mg/L Ext	6010B	9/11/05
Chloride	0.51	mg/L Ext	300.0	9/06/05
Fluoride	0.15	mg/L Ext	300.0	9/06/05
Potassium	1.43	mg/L Ext	6010B	9/11/05
Magnesium	0.175	mg/L Ext	6010B	9/11/05
Sodium	2.75	mg/L Ext	6010B	9/11/05
Sulfate, SO4	11.7	mg/L Ext	300.0	9/06/05
Aluminum	0.069	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	<0.0020	mg/L Ext	6010B	9/11/05
Cobalt	<0.0060	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	<0.010	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	0.0818	mg/L Ext	6010B	9/11/05
Nickel	<0.010	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	<0.010	mg/L Ext	6010B	9/11/05

CalcTDS:	21.5	TDS/Cond:	CATION SUM:	0.34meq/L	BALANCE
TDS/CalcTDS:	0.8	CalcTDS/Cond:	ANION SUM:	0.31meq/L	4.62%

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 13:06

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: I000019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B1(15.0-16.5)
Sample Collected: 8/18/05 9:35
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465568
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	1.2	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	1.2	mg CaCO3/L	2320B	9/07/05
pH	5.72 @ 20°C		150.1	9/07/05
TDS	44	mg/L Ext	160.1	9/06/05
Calcium	7.08	mg/L Ext	6010B	9/11/05
Chloride	0.59	mg/L Ext	300.0	9/06/05
Fluoride	<0.10	mg/L Ext	300.0	9/06/05
Potassium	2.81	mg/L Ext	6010B	9/11/05
Magnesium	0.437	mg/L Ext	6010B	9/11/05
Sodium	2.51	mg/L Ext	6010B	9/11/05
Sulfate, SO4	26.2	mg/L Ext	300.0	9/06/05
Aluminum	0.042	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	<0.0020	mg/L Ext	6010B	9/11/05
Cobalt	0.0073	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	0.066	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	0.614	mg/L Ext	6010B	9/11/05
Nickel	<0.010	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	0.066	mg/L Ext	6010B	9/11/05

CalcTDS:	40.5	TDS/Cond:	CATION SUM:	0.59meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	0.59meq/L	0.00%

CLIENT COMMENT ON COC:ICE WATER LEAKED INTO BAG
Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 13:06

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0897

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B1(20.0-21.5)
Sample Collected: 8/18/05 10:00
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465569
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	4.90 @ 21°C		150.1	9/07/05
TDS	219	mg/L Ext	160.1	9/06/05
Calcium	52.1	mg/L Ext	6010B	9/11/05
Chloride	0.62	mg/L Ext	300.0	9/06/05
Fluoride	0.36	mg/L Ext	300.0	9/06/05
Potassium	1.24	mg/L Ext	6010B	9/11/05
Magnesium	1.81	mg/L Ext	6010B	9/11/05
Sodium	1.95	mg/L Ext	6010B	9/11/05
Sulfate, SO4	144	mg/L Ext	300.0	9/06/05
Aluminum	1.11	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0034	mg/L Ext	6010B	9/11/05
Cobalt	0.0144	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	0.953	mg/L Ext	6010B	9/11/05
Iron	0.567	mg/L Ext	6010B	9/11/05
Manganese	1.03	mg/L Ext	6010B	9/11/05
Nickel	<0.010	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	0.665	mg/L Ext	6010B	9/11/05

CalcTDS:	205	TDS/Cond:	CATION SUM:	3.09meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	3.04meq/L	0.82%

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 10:50

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B1(25.0-25.8)
Sample Collected: 8/18/05 10:22
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465570
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	4.29 @ 21°C		150.1	9/07/05
TDS	198	mg/L Ext	160.1	9/06/05
Calcium	34.5	mg/L Ext	6010B	9/11/05
Chloride	0.25	mg/L Ext	300.0	9/06/05
Fluoride	0.90	mg/L Ext	300.0	9/06/05
Potassium	1.25	mg/L Ext	6010B	9/11/05
Magnesium	5.75	mg/L Ext	6010B	9/11/05
Sodium	2.06	mg/L Ext	6010B	9/11/05
Sulfate, SO4	127	mg/L Ext	300.0	9/06/05
Aluminum	2.03	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0136	mg/L Ext	6010B	9/11/05
Cobalt	0.0600	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	3.02	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	3.93	mg/L Ext	6010B	9/11/05
Nickel	0.017	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	2.27	mg/L Ext	6010B	9/11/05

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 11:20

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B1(25.8-26.5)
Sample Collected: 8/18/05 10:23
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465571
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	4.49 @ 21°C		150.1	9/07/05
TDS	237	mg/L Ext	160.1	9/06/05
Calcium	43.1	mg/L Ext	6010B	9/11/05
Chloride	0.57	mg/L Ext	300.0	9/06/05
Fluoride	0.79	mg/L Ext	300.0	9/06/05
Potassium	1.35	mg/L Ext	6010B	9/11/05
Magnesium	6.06	mg/L Ext	6010B	9/11/05
Sodium	1.99	mg/L Ext	6010B	9/11/05
Sulfate, SO4	155	mg/L Ext	300.0	9/06/05
Aluminum	1.94	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0128	mg/L Ext	6010B	9/11/05
Cobalt	0.0529	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	2.85	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	3.56	mg/L Ext	6010B	9/11/05
Nickel	0.017	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	2.29	mg/L Ext	6010B	9/11/05

CalcTDS:	216	TDS/Cond:	CATION SUM:	3.28meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	3.29meq/L	-0.15%

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 10:50

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B2(30.0-31.5)
Sample Collected: 8/18/05 12:10
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465572
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	37.8	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	6.6	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	31.2	mg CaCO3/L	2320B	9/07/05
pH	8.73 @ 22°C		150.1	9/07/05
TDS	270	mg/L Ext	160.1	9/06/05
Calcium	2.85	mg/L Ext	6010B	9/11/05
Chloride	2.59	mg/L Ext	300.0	9/06/05
Fluoride	0.82	mg/L Ext	300.0	9/06/05
Potassium	2.38	mg/L Ext	6010B	9/11/05
Magnesium	2.49	mg/L Ext	6010B	9/11/05
Sodium	15.7	mg/L Ext	6010B	9/11/05
Sulfate, SO4	1.74	mg/L Ext	300.0	9/06/05
Aluminum	19.3	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	<0.0020	mg/L Ext	6010B	9/11/05
Cobalt	<0.0060	mg/L Ext	6010B	9/11/05
Chromium	0.0080	mg/L Ext	6010B	9/11/05
Copper	0.229	mg/L Ext	6010B	9/11/05
Iron	13.3	mg/L Ext	6010B	9/11/05
Manganese	0.122	mg/L Ext	6010B	9/11/05
Nickel	<0.010	mg/L Ext	6010B	9/11/05
Lead	0.0327	mg/L Ext	6010B	9/11/05
Zinc	0.139	mg/L Ext	6010B	9/11/05

CalcTDS:	84.2	TDS/Cond:	CATION SUM:	3.72meq/L	BALANCE
TDS/CalcTDS:	3.2	CalcTDS/Cond:	ANION SUM:	0.91meq/L	60.69%

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/13/05
9/12/05 13:06

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC. Certificate: ID ID00019
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0897

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B2(60.0-61.5)
Sample Collected: 8/18/05 13:10
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465573
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	5.36 @ 21°C		150.1	9/07/05
TDS	106	mg/L Ext	160.1	9/06/05
Calcium	18.9	mg/L Ext	6010B	9/11/05
Chloride	0.61	mg/L Ext	300.0	9/06/05
Fluoride	0.56	mg/L Ext	300.0	9/06/05
Potassium	1.87	mg/L Ext	6010B	9/11/05
Magnesium	4.69	mg/L Ext	6010B	9/11/05
Sodium	2.15	mg/L Ext	6010B	9/11/05
Sulfate, SO4	75.8	mg/L Ext	300.0	9/06/05
Aluminum	0.419	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0038	mg/L Ext	6010B	9/11/05
Cobalt	0.0150	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	1.22	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	2.60	mg/L Ext	6010B	9/11/05
Nickel	0.014	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	1.18	mg/L Ext	6010B	9/11/05

CalcTDS:	107	TDS/Cond:	CATION SUM:	1.69meq/L	BALANCE
TDS/CalcTDS:	1.0	CalcTDS/Cond:	ANION SUM:	1.63meq/L	1.81%

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 10:50

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B2(65.0-66.5)
Sample Collected: 8/18/05 13:28
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465574
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	4.40 @ 22°C		150.1	9/07/05
TDS	219	mg/L Ext	160.1	9/06/05
Calcium	37.9	mg/L Ext	6010B	9/11/05
Chloride	0.61	mg/L Ext	300.0	9/06/05
Fluoride	0.71	mg/L Ext	300.0	9/06/05
Potassium	1.89	mg/L Ext	6010B	9/11/05
Magnesium	6.85	mg/L Ext	6010B	9/11/05
Sodium	1.93	mg/L Ext	6010B	9/11/05
Sulfate, SO4	147	mg/L Ext	300.0	9/06/05
Aluminum	1.80	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0093	mg/L Ext	6010B	9/11/05
Cobalt	0.0548	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	3.33	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	5.20	mg/L Ext	6010B	9/11/05
Nickel	0.026	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	2.57	mg/L Ext	6010B	9/11/05

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 11:20

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B2(70.0-71.5)
Sample Collected: 8/18/05 13:45
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465575

Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	4.24 @ 22°C		150.1	9/07/05
TDS	216	mg/L Ext	160.1	9/06/05
Calcium	39.4	mg/L Ext	6010B	9/11/05
Chloride	0.65	mg/L Ext	300.0	9/06/05
Fluoride	0.53	mg/L Ext	300.0	9/06/05
Potassium	1.89	mg/L Ext	6010B	9/11/05
Magnesium	4.62	mg/L Ext	6010B	9/11/05
Sodium	1.77	mg/L Ext	6010B	9/11/05
Sulfate, SO4	143	mg/L Ext	300.0	9/06/05
Aluminum	2.59	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0099	mg/L Ext	6010B	9/11/05
Cobalt	0.0456	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	3.14	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	3.94	mg/L Ext	6010B	9/11/05
Nickel	0.016	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	2.04	mg/L Ext	6010B	9/11/05

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 11:20

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B2(75.0-76.5)
Sample Collected: 8/18/05 14:05
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465576
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	4.29 @ 22°C		150.1	9/07/05
TDS	209	mg/L Ext	160.1	9/06/05
Calcium	39.4	mg/L Ext	6010B	9/11/05
Chloride	0.68	mg/L Ext	300.0	9/06/05
Fluoride	0.58	mg/L Ext	300.0	9/06/05
Potassium	2.78	mg/L Ext	6010B	9/11/05
Magnesium	5.10	mg/L Ext	6010B	9/11/05
Sodium	1.81	mg/L Ext	6010B	9/11/05
Sulfate, SO4	147	mg/L Ext	300.0	9/06/05
Aluminum	2.57	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0112	mg/L Ext	6010B	9/11/05
Cobalt	0.0680	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	3.37	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	4.86	mg/L Ext	6010B	9/11/05
Nickel	0.020	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	2.27	mg/L Ext	6010B	9/11/05

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 11:20

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0897

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B2(80.0-81.5)
Sample Collected: 8/18/05 14:35
Sample Receipt : 8/24/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 465577
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	4.25 @ 22°C		150.1	9/07/05
TDS	141	mg/L Ext	160.1	9/06/05
Calcium	22.0	mg/L Ext	6010B	9/11/05
Chloride	0.63	mg/L Ext	300.0	9/06/05
Fluoride	0.53	mg/L Ext	300.0	9/06/05
Potassium	2.40	mg/L Ext	6010B	9/11/05
Magnesium	3.96	mg/L Ext	6010B	9/11/05
Sodium	1.77	mg/L Ext	6010B	9/11/05
Sulfate, SO4	93.9	mg/L Ext	300.0	9/06/05
Aluminum	1.48	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0081	mg/L Ext	6010B	9/11/05
Cobalt	0.0445	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	2.55	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	3.36	mg/L Ext	6010B	9/11/05
Nickel	0.014	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	1.73	mg/L Ext	6010B	9/11/05

Tests:TYRONE SPLP TBL 1|

Reviewed By: _____ Date 9/12/05
9/12/05 11:20

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.
One Government Gulch ▪ P.O. Box 929 ▪ Kellogg, Idaho 83837-0929 ▪ Phone: (208)784-1258 ▪ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : PHELPS DODGE - TYRONE
PROJECT: Y06976
CLIENT SAMPLE ID: DP-363-B2(85.0-86.0)
Sample Collected: 8/18/05 15:10
Sample Receipt : 8/25/05
Date of Report : 9/12/05

SVL JOB: 118559
SAMPLE: 466118
Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Method	Analyzed
ALKALINITY	<1.0	mg CaCO3/L	2320B	9/07/05
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
HCO3, CaCO3	<1.0	mg CaCO3/L	2320B	9/07/05
pH	4.59 @ 21°C		150.1	9/07/05
TDS	190	mg/L Ext	160.1	9/06/05
Calcium	31.8	mg/L Ext	6010B	9/11/05
Chloride	0.72	mg/L Ext	300.0	9/06/05
Fluoride	0.51	mg/L Ext	300.0	9/06/05
Potassium	2.66	mg/L Ext	6010B	9/11/05
Magnesium	4.14	mg/L Ext	6010B	9/11/05
Sodium	2.21	mg/L Ext	6010B	9/11/05
Sulfate, SO4	119	mg/L Ext	300.0	9/06/05
Aluminum	1.75	mg/L Ext	6010B	9/11/05
Arsenic	<0.0250	mg/L Ext	6010B	9/11/05
Cadmium	0.0085	mg/L Ext	6010B	9/11/05
Cobalt	0.0491	mg/L Ext	6010B	9/11/05
Chromium	<0.0060	mg/L Ext	6010B	9/11/05
Copper	2.59	mg/L Ext	6010B	9/11/05
Iron	<0.060	mg/L Ext	6010B	9/11/05
Manganese	3.81	mg/L Ext	6010B	9/11/05
Nickel	0.016	mg/L Ext	6010B	9/11/05
Lead	<0.00750	mg/L Ext	6010B	9/11/05
Zinc	1.81	mg/L Ext	6010B	9/11/05

CalcTDS:	167	TDS/Cond:	CATION SUM:	2.57meq/L	BALANCE
TDS/CalcTDS:	1.1	CalcTDS/Cond:	ANION SUM:	2.53meq/L	0.78%

Tests:TYRONE SPLP TBL 1

Reviewed By: _____ Date 9/12/05
9/12/05 10:50

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C1268

SVL ANALYTICAL, INC.

Quality Control Report
Part I Prep Blank and Laboratory Control Sample

Client :PHELPS DODGE - TYRONE — SVL JOB No: 118559

Analyte	Method	Matrix	Units	Prep Blank	True	LCS Found	LCS %R	Analysis Date
Aluminum	6010B	ESOIL	mg/L Ext	<0.030	1.00	1.08	108.0	9/11/05
Arsenic	6010B	ESOIL	mg/L Ext	<0.0250	1.00	1.01	101.0	9/11/05
Calcium	6010B	ESOIL	mg/L Ext	<0.040	20.0	21.1	105.5	9/11/05
Cadmium	6010B	ESOIL	mg/L Ext	<0.0020	1.00	1.01	101.0	9/11/05
Cobalt	6010B	ESOIL	mg/L Ext	<0.0060	1.00	1.01	101.0	9/11/05
Chromium	6010B	ESOIL	mg/L Ext	<0.0060	1.00	1.04	104.0	9/11/05
Copper	6010B	ESOIL	mg/L Ext	<0.010	1.00	1.01	101.0	9/11/05
Iron	6010B	ESOIL	mg/L Ext	<0.060	10.0	10.6	106.0	9/11/05
Potassium	6010B	ESOIL	mg/L Ext	<0.50	20.0	20.2	101.0	9/11/05
Magnesium	6010B	ESOIL	mg/L Ext	<0.060	20.0	20.2	101.0	9/11/05
Manganese	6010B	ESOIL	mg/L Ext	<0.0040	1.00	1.03	103.0	9/11/05
Sodium	6010B	ESOIL	mg/L Ext	<0.50	19.0	18.9	99.5	9/11/05
Nickel	6010B	ESOIL	mg/L Ext	<0.010	1.00	0.962	96.2	9/11/05
Lead	6010B	ESOIL	mg/L Ext	<0.00750	1.00	1.01	101.0	9/11/05
Zinc	6010B	ESOIL	mg/L Ext	<0.010	1.00	0.989	98.9	9/11/05
Chloride	300.0	ESOIL	mg/L Ext	<0.20	4.96	4.73	95.4	9/06/05
Fluoride	300.0	ESOIL	mg/L Ext	<0.10	2.50	2.42	96.8	9/06/05
Sulfate, SO4	300.0	ESOIL	mg/L Ext	<0.30	9.97	9.79	98.2	9/06/05
ALKALINITY	2320B	ESOIL	mg/L Ext	<1.0	65.0	67.5	103.8	9/07/05
pH	150.1	ESOIL		6.43	6.00	6.01	100.2	9/07/05
TDS	160.1	ESOIL	mg/L Ext	<10	1860	1730	93.0	9/06/05

LEGEND:
LCS = Laboratory Control Sample LCS %R = LCS Percent Recovery N/A = Not Applicable

SVL ANALYTICAL, INC.

Quality Control Report
Part II Duplicate and Spike Analysis

Client :PHELPS DODGE - TYRONE — SVL JOB No: 118559

Test	Method	Mtx	QC SAMPLE ID	Units	Result	Duplicate Found		MSD RPD%	Matrix Spike Result	SPK ADD		%R	Analysis Date
Al	6010B	E	1	mg/L Ex	0.069	1.15	M	0.9	1.14	1.00		107.1	9/11/05
Al	6010B	E	2	mg/L Ex	2.57	N/A		N/A	3.72	1.00		115.0	9/11/05
As	6010B	E	1	mg/L Ex	<0.0250	1.01	M	0.0	1.01	1.00		101.0	9/11/05
As	6010B	E	2	mg/L Ex	<0.0250	N/A		N/A	1.01	1.00		101.0	9/11/05
Ca	6010B	E	1	mg/L Ex	3.17	23.8	M	0.0	23.8	20.0		103.2	9/11/05
Ca	6010B	E	2	mg/L Ex	39.4	N/A		N/A	59.7	20.0		101.5	9/11/05
Cd	6010B	E	1	mg/L Ex	<0.0020	0.993	M	0.7	0.9998	1.00		100.0	9/11/05
Cd	6010B	E	2	mg/L Ex	0.0112	N/A		N/A	0.983	1.00		97.2	9/11/05
Co	6010B	E	1	mg/L Ex	<0.0060	1.00	M	0.1	0.999	1.00		99.9	9/11/05
Co	6010B	E	2	mg/L Ex	0.0680	N/A		N/A	1.04	1.00		97.2	9/11/05
Cr	6010B	E	1	mg/L Ex	<0.0060	1.02	M	0.0	1.02	1.00		102.0	9/11/05
Cr	6010B	E	2	mg/L Ex	<0.0060	N/A		N/A	1.01	1.00		101.0	9/11/05
Cu	6010B	E	1	mg/L Ex	<0.010	1.01	M	1.0	1.02	1.00		102.0	9/11/05
Cu	6010B	E	2	mg/L Ex	3.37	N/A		N/A	4.22	1.00		85.0	9/11/05
Fe	6010B	E	1	mg/L Ex	<0.060	10.5	M	1.0	10.4	10.0		104.0	9/11/05
Fe	6010B	E	2	mg/L Ex	<0.060	N/A		N/A	10.4	10.0		104.0	9/11/05
K	6010B	E	1	mg/L Ex	1.43	21.5	M	0.5	21.4	20.0		99.9	9/11/05
K	6010B	E	2	mg/L Ex	2.78	N/A		N/A	23.3	20.0		102.6	9/11/05
Mg	6010B	E	1	mg/L Ex	0.175	20.2	M	0.5	20.1	20.0		99.6	9/11/05
Mg	6010B	E	2	mg/L Ex	5.10	N/A		N/A	25.3	20.0		101.0	9/11/05
Mn	6010B	E	1	mg/L Ex	0.0818	1.09	M	0.0	1.09	1.00		100.8	9/11/05
Mn	6010B	E	2	mg/L Ex	4.86	N/A		N/A	5.76	1.00		90.0	9/11/05
Na	6010B	E	1	mg/L Ex	2.75	21.5	M	0.5	21.4	19.0		98.2	9/11/05
Na	6010B	E	2	mg/L Ex	1.81	N/A		N/A	21.0	19.0		101.0	9/11/05
Ni	6010B	E	1	mg/L Ex	<0.010	0.951	M	0.3	0.948	1.00		94.8	9/11/05
Ni	6010B	E	2	mg/L Ex	0.020	N/A		N/A	0.962	1.00		94.2	9/11/05
Pb	6010B	E	1	mg/L Ex	<0.00750	0.99955	M	0.8	0.992	1.00		99.2	9/11/05
Pb	6010B	E	2	mg/L Ex	<0.00750	N/A		N/A	0.983	1.00		98.3	9/11/05
Zn	6010B	E	1	mg/L Ex	<0.010	0.971	M	0.1	0.972	1.00		97.2	9/11/05
Zn	6010B	E	2	mg/L Ex	2.27	N/A		N/A	3.01	1.00		74.0	9/11/05
Zn	6010B	E	2	mg/L Ex	2.27	N/A		N/A	3.01	1.00	A	74.0	9/11/05
Cl	300.0	E	3	mg/L Ex	2.03	2.02		0.5	3.83	2.00		90.0	9/06/05
Cl	300.0	E	2	mg/L Ex	0.68	N/A		N/A	2.02	2.00		67.0	9/06/05
F	300.0	E	3	mg/L Ex	0.38	0.44		14.6	2.40	2.00		101.0	9/06/05
F	300.0	E	2	mg/L Ex	0.58	N/A		N/A	1.72	2.00		57.0	9/06/05
SO4	300.0	E	3	mg/L Ex	2.38	2.39		0.4	7.07	5.00		93.8	9/06/05
SO4	300.0	E	2	mg/L Ex	147	N/A		N/A	200	50.0		106.0	9/06/05
ALK	2320B	E	3	mg/L Ex	29.1	29.5		1.4	N/A	N/A		N/A	9/07/05
CO3	2320B	E	3	mg/L Ex	<1.0	<1.0		UDL	N/A	N/A		N/A	9/07/05
HCO3	2320B	E	3	mg/L Ex	29.1	29.5		1.4	N/A	N/A		N/A	9/07/05
pH	150.1	E	3		6.38	6.53		2.3	N/A	N/A		N/A	9/07/05
TDS	160.1	E	3	mg/L Ex	137	129		6.0	N/A	N/A		N/A	9/06/05

LEGEND:
RPD% = (|SAM - DUP| /((SAM + DUP)/2) * 100) UDL = Both SAM & DUP not detected. *Result or *Found: Interference required dilution.
RPD% = (|SPK - MSD| /((SPK + MSD)/2) * 100) M in Duplicate/MSD column indicates MSD.
SPIKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added
QC limits for MS recoveries apply only if the spike is at least 1/4 the concentration of the analyte in the sample.
Control limits for the RPD apply only if the concentration of the analyte in the sample is at least five times the reporting limit.
QC Sample 1: SVL SAM No.: 465567 Client Sample ID: DP-363-B1(10.0-11.5)
QC Sample 2: SVL SAM No.: 465576 Client Sample ID: DP-363-B2(75.0-76.5)
QC Sample 3: SVL SAM No.: 465566 Client Sample ID: DP-363-B1(5.0-6.5)

#118559

COC NO.

Chain of Custody Record

Project: TYRONE

LABORATORY: (208) 784-1258
SVL ANALYTICAL, INC.
One Government Gulch
Kellogg, ID 83837-0929

Note: Ice water leaked into bag.

Sample Date	Time	Sample Identification (Field ID)	Matrix o.	No. of Containers	Comments
08/18/05	9:10	DP-363-2005-B1(5.0-6.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	9:22	DP-363-2005-B1(10.0-11.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	9:35	DP-363-2005-B1(15.0-16.5) ☆	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	10:00	DP-363-2005-B1(20.0-21.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	10:22	DP-363-2005-B1(25.0-25.8)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	10:23	DP-363-2005-B1(25.8-26.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	12:10	DP-363-2005-B2(30.0-31.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	13:10	DP-363-2005-B2(60.0-61.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	13:28	DP-363-2005-B2(65.0-66.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	13:45	DP-363-2005-B2(70.0-71.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	14:05	DP-363-2005-B2(75.0-76.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	14:35	DP-363-2005-B2(80.0-81.5)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
08/18/05	15:10	DP-363-2005-B2(85.0-86.0)	soil	1 zip lock	SPLP;SW846 1312 & attached table 1
		PO # Y06976 -Tyrone Drilling Project			
		Phelps Dodge Tyrone Mine Environmental Services			
		If questions call Trish Potter (505) 537-4319			
Analytical Parameters					
Signatures:			Date and Time		
Relinquished by:					
Received by:	Kelli Sung		8-24-05	12:05	
Relinquished by:					
Received for Laboratory by:					

Please send results to: Daniel B. Stephens & Assoc
ATTN: Neil Blandford
6020 Academy NE, Ste. 100
Albuquerque, NM 87109
~~Fax~~ Tel: (505) 822 9400
Fax: (505) 822 8877
email: nblandford@dbstephens.com

Table 1. Groundwater Quality Parameters and Associated Standards and Analytical Methods

Chemical and Physical Characteristics	NMWQCC Groundwater Quality Standards [a]	Field Measurement	Laboratory	Detection Limits [a]
Specific conductance	NA	X		1.0 µS/cm
pH	Between 6 and 9	X	X	0.1 (s.u.)
Temperature	NA	X		0.1°C
TDS	1,000		X	10.0
Anions				
Total alkalinity	NA		X	1.0
Bicarbonate	NA		X	1.0
Carbonate	NA		X	1.0
Chloride	250		X	1.0
Fluoride	1.6		X	0.1
Sulfate	600		X	2.0
Cations				
Calcium	NA		X	1.0
Magnesium	NA		X	1.0
Potassium	NA		X	1.0
Sodium	NA		X	1.0
Metals				
Aluminum	5.0		X	
Arsenic	0.1		X	0.04
Cadmium	0.01		X	0.005
Chromium	0.05		X	0.01
Cobalt	0.05		X	0.02
Copper	1.0		X	0.01
Iron	1.0		X	0.05
Lead	0.05		X	0.02
Manganese	0.2		X	0.03
Nickel	0.2		X	0.01
Zinc	10.0		X	0.01

[a] Values given in milligrams per liter (mg/L), unless otherwise noted.
NMWQCC = New Mexico Water Quality Control Commission (2002)
NA = Not applicable
TDS = Total dissolved solids

SVL ANALYTICAL, INC.
ment Gulch - Kellogg, ID 83837-0929

SOIL SPLP METALS,ALK
SVL JOB No: 118559
Received: 8/24/05
Expected Due date: 9/08/05

ll invoice: Accounts Payable Dept
Phelps Dodge CORP.
POB 13308

Phoenix AZ 85002-3308
Fax:

By	Received	Sample Comments
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	CLIENT COMMENT ON COC:ICE WATER LEAKED INTO BAG
		Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/24/05	Tests:TYRONE SPLP TBL 1
	8/25/05	Tests:TYRONE SPLP TBL 1

after job completion.
then you will receive a letter requesting disposal options.

you have questions regarding the receipt of these samples. 8/26/05 10:11

TRANSMISSION VERIFICATION REPORT

TIME : 08/26/2005 10:41
NAME : SVL ANALYTICAL
FAX : 2087830891
TEL : 2087841258
SER.# : BROF3J496071

DATE,TIME 08/26 10:40
FAX NO./NAME 91505537801 2
DURATION 00:00:36
PAGE(S) 01
RESULT OK
MODE FINE ECM

SPLP Extraction Log

JOB#: 118559

SVL ANALYTICAL, INC.

CASE #: SAS #: SDG #:

SVL#	M	ClientID	Fluid Type	mls Fluid	Sample Wt.	Tumble Ext. Time	Final pH
		pH 4 Buffer					4.00
		pH 7 Buffer					7.01
465565	ES	EXTRACTION FLUID	WESTERN				5.00
465566	ES	DP-363-B1(5.2-6.5)	FLUID	2000	100g	18HR	7.54
465567	ES	DP-363-B1(10.0-11.5)		2000	100g	18HR	5.88
465568	ES	DP-363-B1(15.0-16.5)		2000	100g	18HR	5.34
465569	ES	DP-363-B1(20.0-21.5)		2000	100g	18HR	4.18
465570	ES	DP-363-B1(25.0-25.8)		2000	100g	18HR	4.27
465571	ES	DP-363-B1(25.8-26.5)		2000	100g	18HR	4.27
465572	ES	DP-363-B2(30.0-31.5)		2000	100g	18HR	6.36
465573	ES	DP-363-B2(60.0-61.5)		2000	100g	18HR	4.71
465574	ES	DP-363-B2(65.0-66.5)		2000	100g	18HR	4.32
465575	ES	DP-363-B2(70.0-71.5)		2000	100g	18HR	4.20
465576	ES	DP-363-B2(75.0-76.5)		2000	100g	18HR	4.24
465577	ES	DP-363-B2(80.0-81.5)		2000	100g	18HR	4.31
466118	ES	DP-363-B2(85.0-86.0)	V	2000	100g	18HR	4.31

Extraction Started By: Ga Date/Time: 08/31/05 1040

Extraction Completed By: Ga Date/Time: 09/01/05 0440

Client: PHELPS DODGE - TYRONE

Received: 8/24/05

v3.0