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ENVIRONMENT DEPARTMENT
Surface Water Quality Bureau

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DAVE MARTIN
Secretary

RAJ SOLOMON, P.E.
Deputy Secretary

Certified Mail – Return Receipt Requested

June 20, 2011

Dr. James Fries, President
New Mexico Highlands University
Box 9000
Las Vegas, New Mexico 87701

RE: Minor Non-Municipal, SIC 1711, NPDES Reconnaissance Inspection, New Mexico Highlands University / Student Union Geothermal Well Drilling, NMU001737, June 9, 2011

Dear Dr. Fries,

Enclosed, please find a copy of the report for the referenced inspection that the New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB) conducted at your facility on behalf of the U.S. Environmental Protection Agency (USEPA). This inspection report will be sent to the USEPA in Dallas for their review. These inspections are used by USEPA to determine compliance with the National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Problems noted during this inspection are discussed in the Further Explanations section of the inspection report. You are encouraged to review the inspection report, required to correct any problems noted during the inspection, and to modify your operational and/or administrative procedures, as appropriate. Further, you are encouraged to notify in writing, both the USEPA and NMED regarding modifications and compliance schedules at the addresses below:

Diana McDonald
US Environmental Protection Agency
Allied Bank Tower
Region VI Enforcement Branch (6EN-WM)
1445 Ross Avenue
Dallas, Texas 75202-2733

Program Manager
New Mexico Environment Department
Surface Water Quality Bureau
Point Source Regulation Section
P.O. Box 5469
Santa Fe, New Mexico 87502

I appreciate the cooperation of Mr. Jorden Grimm, Manager, Operations & Capital Projects, Facilities Services, NMHU; Rob Haggard Sr., Project Manager, Makwa Builders, LLC, and Matthew Lane, Project Manager, GL Environmental Inc. during the inspection. If you have any questions about this inspection report, please contact me at 505-827-0418.

Sincerely,

/s/ Erin S. Trujillo

Erin S. Trujillo
Surface Water Quality Bureau

cc: Marcia Gail Adams, USEPA (6EN-AS) by e-mail
Samuel Tates, EPA (6EN-AS) by e-mail
Carol Peters-Wagon, USEPA (6EN-WM) by e-mail
Diana McDonald, USEPA (6EN-WM) by e-mail
Larry Giglio, USEPA (6WQ-PP) by e-mail
Robert Italiano NMED District II Manager by e-mail
Jorden Grimm, Manager, Operations & Capital Projects, Facilities Services, NMHU by e-mail



Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

NPDES Compliance Inspection Report

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspec. Type	Inspector	Fac Type
1 N 2 5 3 N M U 0 0 1 7 3 7 11 12 1 1 0 6 0 9 17 18 R 19 S 20 2					
Remarks					
W E L L P R O C E S S W A T E R D I S C H A R G E					
Inspection Work Days	Facility Evaluation Rating	BI	QA	Reserved	
67 69	70 1	71 N	72 N	73	74 75 M I N O R 80

Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number) New Mexico Highlands University (NMHU), Student Union, Geothermal Well Drilling Area, Corner of Washington Street and Ninth Street, Las Vegas, NM 87701. San Miguel County	Entry Time /Date 1140 hours / 06/09/2011	Permit Effective Date Unpermitted
Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s) Jordan Grimm / Manager, Operations & Capital Projects, Facilities Services, NMHU / 505-429-8753 Rob Haggard Sr. / Proj Site Manager, Makwa Builders, LLC / 505-554-1993, fax 554-1994 Matthew Lane / Project Manager, GL Environmental Inc., Las Vegas / 505-454-0830	Exit Time/Date 1545 hours / 06/09/2011	Permit Expiration Date Unpermitted
Name, Address of Responsible Official/Title/Phone and Fax Number Dr. James Fries, New Mexico Highlands University, Box 9000, Las Vegas, New Mexico 87701 / President / 1-877-850-9064	Other Facility Data Discharge Locations on June 8 at Gallinas Creek Latitude 35.596267°, Longitude -105.225607° Latitude 35.594684°, Longitude -105.224516° SIC 1711 Plumbing, Heating and Air-Conditioning	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>

Section C: Areas Evaluated During Inspection
(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

U	Permit	N	Flow Measurement	N	Operations & Maintenance	N	CSO/SSO
N	Records/Reports	N	Self-Monitoring Program	N	Sludge Handling/Disposal	N	Pollution Prevention
U	Facility Site Review	N	Compliance Schedules	N	Pretreatment	N	Multimedia
U	Effluent/Receiving Waters	N	Laboratory	N	Storm Water	N	Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

- A Reconnaissance Inspection at the New Mexico Highlands University (NMHU) geothermal well drilling area at the corner of Washington Street and Ninth Street in Las Vegas, New Mexico was conducted following notification that process waters from drilling operations had discharged to the Gallinas Creek.**
- See attached further explanations, maps, photo log and additional information.**

Name(s) and Signature(s) of Inspector(s) Erin S. Trujillo /s/ Erin S. Trujillo	Agency/Office/Telephone/Fax NMED/SWQB/505-827-0418	Date 06/20/2011
Signature of Management QA Reviewer Richard E. Powell /s/ Richard E. Powell	Agency/Office/Phone and Fax Numbers NMED/SWQB/505-827-2798	Date 06/20/2011

**New Mexico Highlands University - Student Union
Geothermal Well Drilling Area
NPDES Tracking No NMU001737
Reconnaissance Inspection
June 9, 2011**

Further Explanations

Introduction

On June 9, 2011, Erin Trujillo, accompanied by Daniel Valenta, both of the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB) conducted a Reconnaissance Inspection at the New Mexico Highlands University (NMHU or owner/operator) geothermal well drilling area at the corner of Washington Street and Ninth Street in Las Vegas, New Mexico in San Miguel County. This inspection followed notification to NMED SWQB that process waters from the drilling waters had discharged to the Gallinas Creek by the City of Las Vegas. The purpose of this inspection was to document NMHU compliance with 40 Code of Federal Regulations (CFR) Part 122 and National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Gallinas Creek, which is also called and assessed as Gallinas River from San Augustin to Las Vegas Diversion, is in Segment 20.6.4.220 of the State of New Mexico Standards for Interstate and Intrastate Surface Waters, 20.6.4 New Mexico Administrative Code (NMAC) in the Pecos River Basin. Designated uses of this segment include irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life and primary contact. This segment does not support Marginal Coldwater Aquatic Life and the listed probable causes of impairment include Benthic-Macroinvertebrate Bioassessments and Nutrient/Eutrophication Biological Indicators. The probable sources of impairment are unknown.

This inspection report is based on information provided by the owner/operator's representatives, observations made by the NMED SWQB inspectors and NMED Las Vegas staff, and records and reports kept or submitted by the owner/operator and/or NMED. Additional information reviewed included NMHU on-line news dated prior to the discharge. After the process water discharge to Gallinas Creek occurred, NMHU submitted to NMED Groundwater Quality Bureau (GWQB) a Notice of Intent for future discharges to groundwater.

Findings for a compliance evaluation inspection of the NMHU Student Union construction project to determine compliance with the USEPA Construction General Permit for NMHU (NPDES Tracking No. NMU001738) and Makwa Builders LLC (NPDES Tracking No. NMR10H379) will be submitted under separate EPA Form 3560 reports.

Background

NMHU (owner/operator) awarded the student union construction project to the general contractor Makwa Builders, LLC, Albuquerque, New Mexico (operator). Groundbreaking for the project was on July 26, 2010. Makwa Builders, LLC subcontracted Ashcraft Mechanical, Inc., Albuquerque, New Mexico, a heating/plumbing contractor, who contracted with Hays Plumbing and Heating, Inc. / Hays Enterprises, Inc. (New Mexico Office of the State Engineers Drilling Lic #585) of Las Vegas, New Mexico to drill ninety six (96) 400-foot deep closed circuit (heat pump) geothermal wells for heating and cooling of the Student Union building on an approximately 1 acre site at the corner of Washington Street and Ninth Street. Groundwater was not encountered in the initial test well prior to construction. Geothermal well drilling operations started approximately two weeks before this inspection. Groundwater was encountered during the drilling of Well No. 4 of 96.

NMHU news dated Tuesday, June 7, 2011 posted at <http://www.nmhu.edu/news.aspx?recid=641> states:

Geothermal well drilling for New Mexico Highlands University's student center construction project is causing groundwater runoff at the northwest corner of 9th and Washington in Las Vegas. The university's drilling contractors for the geothermal project are drilling 96 wells to a depth of 400 feet. The drills are hitting water pockets in the shale at 240 feet that are causing the runoff, according to Jordan Grimm, operations and capital projects manager for the university. "We want people to know that this safe but non-potable groundwater is making its way through the city's curb and gutter system to the Gallinas River," Grimm said. The university is not using any city water for the drilling but is using its own well and cistern water. Grimm said the drilling is scheduled to continue for the next two weeks, and several drilling rigs will be at the student center construction site....

Drilling of Well No. 5 started at approximately 1000 hours on Wednesday, June 8, 2011. Groundwater was encountered at approximately 1030 hours. The amount of groundwater was more than what was encountered during the drilling of Well No. 4. Drilling continued to the well completion depth of 400 feet and was complete at approximately 1230 hours. There was no flow from the well once drilling stopped.

NMED District II Las Vegas Office received a notification from Ken Garcia, Director, City of Las Vegas Utilities on June 8 that large amounts of ground water from drilling at the university's construction site flowed into a storm ditch and into the Gallinas Creek. City of Las Vegas also contacted NMHU at approximately 1300 hours on June 8 according to the owner/operators' on-site representatives.

Robert Haggard Sr., Project Site Manager, Makwa Builders, LLC contacted the NMED SWQB office in Santa Fe, New Mexico at approximately 1440 hours on July 8 to obtain information on handling the drilling process waters without discharges to City of Las Vegas streets or Gallinas Creek. At that time, Mr. Haggard indicated to Erin S. Trujillo that discharge had stopped.

NPDES Reconnaissance Inspection, Discharge Quantity Information

Mr. Haggard Sr. was contacted by Erin S. Trujillo at approximately 1000 hours on Thursday, June 9, 2011 and informed of this inspection. Upon arriving at the geothermal well area at approximately 1140 hours, the inspector made introductions, explained the purpose of the inspection and presented credentials to Jordan Grimm, Manager, Operations & Capital Projects, Facilities Services, NMHU and Mr. Haggard Sr. The inspectors; Mr. Grimm; Mr. Haggard Sr.; and Mr. Matthew Lane, Project Manager, GL Environmental Inc., Las Vegas, New Mexico hired by NMHU toured the geothermal well drilling area and discharge flow path to the two discharge locations in the Gallinas Creek. The inspector also made introductions and explained the purpose of the inspection to Mr. Max Baca, Director of Information Technology Services & Government Relations Liaison, NMHU upon his arrival. A preliminary exit interview was conducted with Mr. Grimm and Mr. Haggard Sr. at the end of the inspection. The inspectors left the site at approximately 1545 hours on June 9, 2011.

During this inspection, the owner/operators' on-site representatives had varying information on the start and ending times, rates and quantities of the discharge. Additional information was requested from NMHU during this inspection and received from Mr. Lane on June 14 and June 16, 2011. Two thousand (2,000) gallons of groundwater was introduced into the borehole(s) for drilling operations. Based on a discharge rate between 50 to 150 gpm, approximately 6,000 to 18,000 gallons of process waters flowed on surface streets and off-site drainage ditches to Gallinas Creek on June 8. Any remaining standing water in the streets or drainage ditches from the runoff discussed in NMHU's news dated July 7 would have also flowed toward the Gallinas Creek on June 8. Some of the estimated flow may have infiltrated at off-site grass drainage ditches before reaching Gallinas Creek.

Clean Water Act and NPDES Requirements

Section 301 of the Federal Clean Water Act states:

Except as in compliance with this section and sections 302, 306, 307, 318, 402 and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.

40 CFR 122.1(b) states, “*Scope of the NPDES permit requirement. (1) The NPDES program requires permits for the discharge of ‘pollutants’ from any ‘point source’ into ‘waters of the United States.’ The terms ‘pollutant’, ‘point source’ and ‘waters of the United States’ are defined at § 122.2.*”

40 CFR 122.21(a) states, “*Duty to apply. (1) Any person who discharges or proposes to discharge pollutants...and who does not have an effective permit...must submit a complete application to the Director....*”

Inspection Findings

Permit – Overall Rating of “U = Unsatisfactory”

An NPDES permit was not obtained for the discharge of pollutants in process waters to Gallinas Creek on June 8. Groundwater was encountered during drilling of Well No. 4 and runoff is noted in NMHU news dated June 7. No additional contingency measures (e.g., a lined pit or other type of containment for process waters) were utilized prior to drilling Well No. 5 on June 8.

Air hammer/rotary drilling methods pulverize unconsolidated and rock formations. During the process of drilling, groundwater from NMHU water wells and cistern was used. Water is typically used to reduce dust, cool the drill bit and/or push cuttings upwards. Potential contaminants in the process water may include total dissolved solids (TDS), chloride, sodium, sulfate, nitrates, volatile organic compounds and trace metals based on information in NMHU’s NMED GWQB NOI. Also, grout and sand mixed on site and used to finish the geothermal wells could have been picked up during the flow of process water offsite. Surfactants or foam can also be used to push cuttings upwards during drilling. A small container of Halliburton Quik-Foam Foaming Agent was on site during this inspection. No drilling foam was used during the drilling of the boreholes according to the owner/operators’ on-site representatives.

Effluent/Receiving Waters – Overall Rating of “U = Unsatisfactory”

On the day of this inspection, accumulated solids or other discoloration from the discharge was not observed in and along Gallinas Creek. Jeffery Mills, District II and Chris Cudia, SWQB at NMED Las Vegas offices stated that they observed the discharge on June 8 from the drilling operations at two locations into the Gallinas Creek. The discharge had a visual contrast compared to surface water flowing upstream of the two discharge points.

Facility Site Review – Overall Rating of “U = Unsatisfactory”

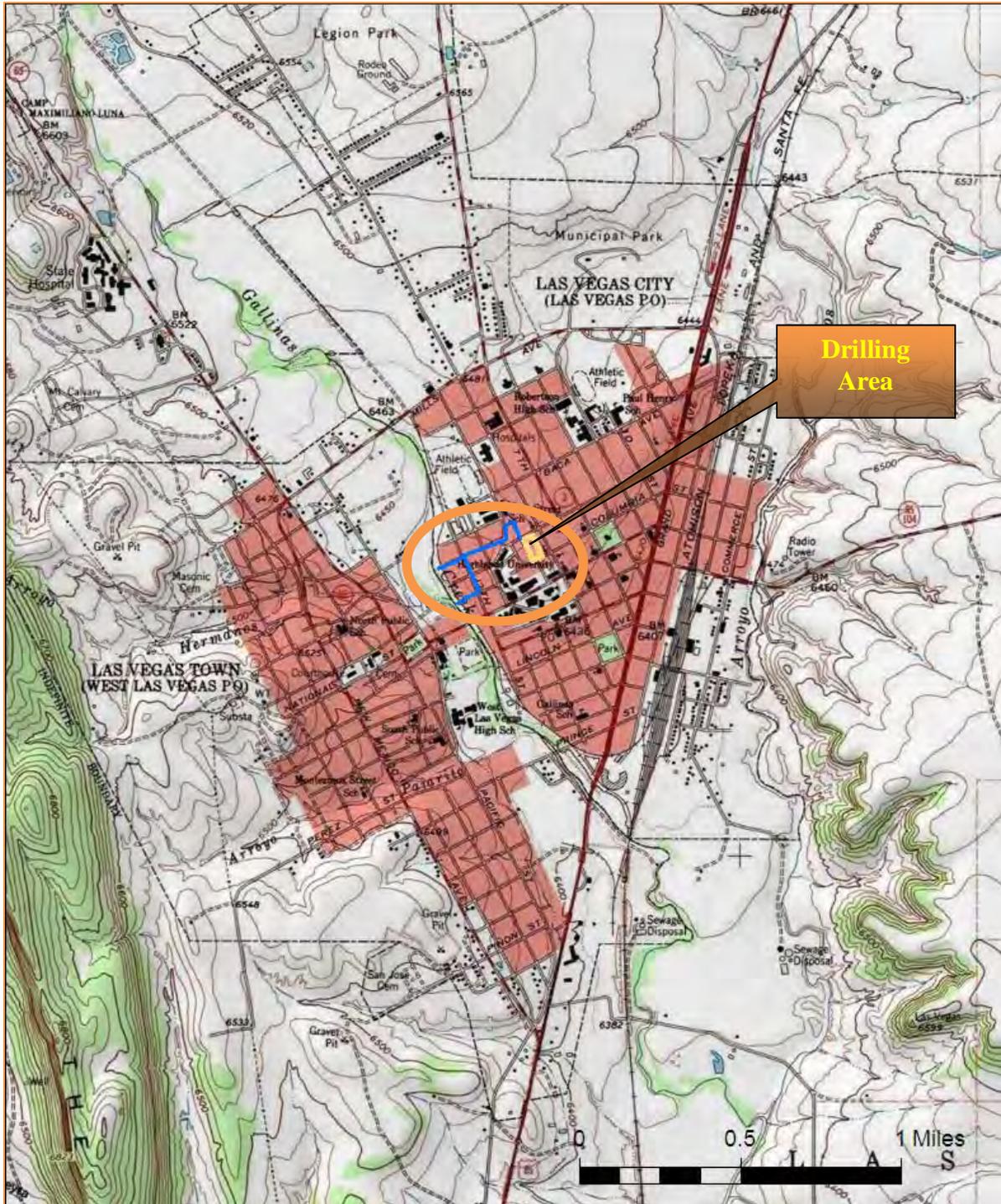
On the day of this inspection, pulverized cuttings including shale, remaining standing water, grout and sand were on the surface at the drilling area. The course gravel berm, hale bales and wattle were not sufficient to contain the process water onsite and prevent pulverized cuttings and other possible pollutants from flowing offsite.

NMHU activities following NPDES Reconnaissance Inspection

Additional information received from NMHU on June 14, 2011 states, “...June 10, 2011, NMHU mobilized maintenance personnel with brooms and shovels as well as a mechanized street sweeper to pick up any sediment deposits left on the city streets as a result of the discharge.”

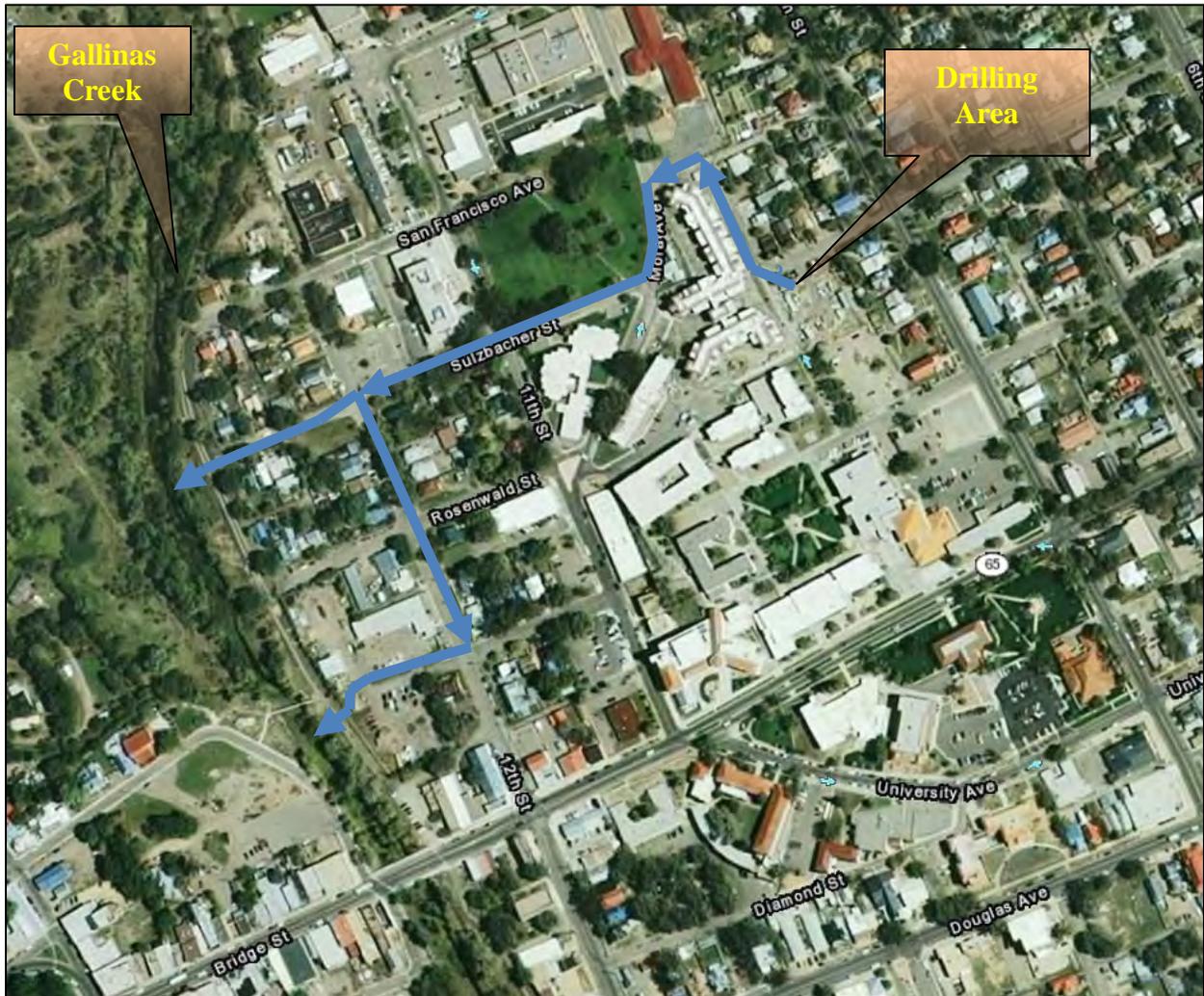
NMED/SWQB
General Location Map

Created by: Erin S. Trujillo		
City/County: Las Vegas / San Miguel	State: New Mexico	
Location: New Mexico Highlands University Student Union Geothermal Well Drilling Area		



NMED/SWQB
Site Map

Created by: Erin S. Trujillo		
City/County: Las Vegas / San Miguel	State: New Mexico	
Location: New Mexico Highlands University Student Union Geothermal Well Drilling Area		
Subject: Approximate flow path of discharge to Gallinas Creek.		



**NMED/SWQB
Official Photograph Log
Photo # 1**

Photographer: Erin S. Trujillo	Date: 06/09/2011	Time: 1217 hours
City/County: Las Vegas / San Miguel	State: New Mexico	
Location: New Mexico Highlands University Student Union Geothermal Well Drilling Area		
Subject: Standing water, pulverized cuttings, grout & sand at the drilling area. Coarse gravel berm installed along site perimeter. Boards were installed along fence to catch cutting fragments during drilling.		



**NMED/SWQB
Official Photograph Log
Photo # 2**

Photographer: Erin S. Trujillo	Date: 06/09/2011	Time: 1220 hours
City/County: Las Vegas / San Miguel	State: New Mexico	
Location: New Mexico Highlands University Student Union Geothermal Well Drilling Area		
Subject: Example of the remaining standing water in street, straw wattle and hay bales at drilling area.		



**NMED/SWQB
Official Photograph Log
Photo # 3**

Photographer: Daniel Valenta	Date: 06/09/2011	Time: 1222 hours
City/County: Las Vegas / San Miguel	State: New Mexico	
Location: New Mexico Highlands University Discharge Flow Path		
Subject: Example of remaining standing water and accumulated solids on Ninth Street. Arrow points to drilling area.		



**NMED/SWQB
Official Photograph Log
Photo # 4**

Photographer: Daniel Valenta	Date: 06/09/2011	Time: 1234 hours
City/County: Las Vegas / San Miguel	State: New Mexico	
Location: Unnamed Road along Gallinas Creek at Sulzbacher Street		
Subject: One of the two off-site drainage ditches where discharge entered culvert pipe with an outlet above Gallinas Creek.		

