FOR MMD USE ONLY:
PROJECT NAME:
PERMIT NUMBER:
DATE RECEIVED:
DATE APPROVED:
LEAD INSPECTOR:
FORM REVISION DATE: 07/09/09

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
Director
Mining and Minerals Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505
Telephone: (505) 476-3400
Webpage: www.emnrd.state.nm.us/MMD/index.htm

SUBPART 3
MINIMAL IMPACT EXPLORATION
PERMIT APPLICATION

The following information is required under the New Mexico Mining Act (Sections 69-36-1 through 69-36-20, NMSA 1978) and associated rules. The Mining and Minerals Division of the Energy, Minerals and Natural Resources Department is the administrative agency through which this application is to be processed. See §302, Minimal Impact Exploration Operations, of the New Mexico Mining Act Rules for all regulations associated with Minimal Impact Exploration Operations.

The applicant is requested to use this application. If additional space is needed, all information requested in this form must be submitted in this same format.

To be considered a minimal impact exploration operation, the following requirements apply:

- A minimal impact exploration operation will **not** exceed **1000 cubic yards** of excavation, per permit.
- Disturbances for constructed roads, drill pads and mud pits shall be **no more than 5 acres total.**

Permit Application Requirements: (302.A - C)

- Please submit six copies of the application.
- Confidential information shall be **clearly** identified and submitted separately
- Exploration commencing after 12/31/94 shall submit an application not less than 45 days prior to the anticipated date of operations.
- Renewal applications shall be filed at least 30 days preceding expiration of the current permit.

Check the **"YES"** or **"NO"** box for each of the following characteristics as related to the proposed minimal impact exploration operation:

NO: Located in or having a direct surface impact on wetlands, springs, perennial or intermittent streams, lakes, rivers, reservoirs or riparian areas.

NO: Located in designated critical habitat areas as determined in accordance with the federal Endangered Species Act of 1973 or in areas determined by the Department of Game and Fish likely to result in an adverse impact on an endangered species designated in accordance with the Wildlife Conservation Act, Sections 17-2-37 through 17-2-46 NMSA 1978 or by the State Forestry Division for the Endangered Plants Act, section 75-6-1 NMSA 1978.

NO: Located in an area designated as Federal Wilderness Area, Wilderness Study Area, Area of Critical Environmental Concern, or an area within the National Wild and Scenic River System.

NO: Located in a known cemetery or other burial ground.

NO: Located in an area with cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Properties.

NO: Having or expected to have a direct impact on ground water that has a total dissolved solids concentration of less than 10,000 mg/L, except exploratory drilling intersecting ground water may be performed as a minimal impact operation.

NO: Expected to use or using cyanide, mercury amalgam, heap leaching or dump leaching in its operations.

NO: Expected to result in point or non-point source surface or subsurface releases of acid or other toxic substances from the permit area.

NO: Requiring a variance from any part of these Rules as part of the permit application.

IMPORTANT NOTES!!
If the operation exceeds 1000 cubic yards of excavation or disturbs more than 5 acres total or any of the above boxes have been checked "YES", then the exploration does not qualify as a minimal impact exploration operation.

! If you do meet the above requirements and have checked "NO" to all of the previous boxes, continue filling out this application.

Obtaining a Mining Act permit does not necessarily satisfy the obligation to obtain other federal, state and local permits.

! All proposed disturbance should be flagged or staked in the field prior to the Mining and Mineral Division's (MMD) initial inspection. Failure to properly mark any proposed drill holes or trenches will delay processing of the permit application.

! All proposed disturbance, including any new proposed access road centerlines, all four (4) corners of any proposed drill pads, and proposed drill hole location(s) within the drill pad area must be staked in the field.

! Any staking of proposed disturbances (access road centerline, drill pad corners, drill hole) should be completed using durable materials such as steel re-bar stakes or T-posts. MMD recommends using rebar stakes of suitable height, and flagging on the rebar at all four (4) corners. Drill holes should be marked by a single T-post driven at the location of proposed drilling.

! The application will be deemed incomplete, without a proper map included. Provide a 1:24,000 USGS quadrangle map with the application. The map should identify locations of drill holes, pads and any new disturbance anticipated.

! If possible, please include with this application for submittal, any other operational plans that may have been submitted, as required, to other land management agencies. Plans of Operations (POO) submitted to the USFS and Notices of Intent (NOI) submitted to the BLM are very helpful in processing this application.

1. OPERATOR INFORMATION (304.D.1)

PROJECT NAME: **Copper Flat Exploration**

NAME OF APPLICANT/OWNER: **New Mexico Copper Corporation**

ADDRESS: **2425 San Pedro NE**
Suite 100
Albuquerque, NM 87110

NAME OF ON-SITE CONTACT OR OPERATOR'S REPRESENTATIVE:

Steve Raugust, PG
Project Manager

Direct: (505) 881-1353
Cell: (505) 967-9542

steve.raugust@themacresourcesgroup.com

2. RIGHT TO ENTER INFORMATION (302.D.1)

A. Describe or attach copies of documents that give the applicant the right to enter the property to conduct the exploration and reclamation, include: lease agreements, access agreements, right of way agreements, surface owner agreements, and claim numbers, if applicable.

***See* CONFIDENTIAL Attachment A:** **Portions of Option and Purchase Agreement, Article IV, Optionee's Right of Entry and Use.**

B. List the names and addresses of surface and mineral ownership within the proposed permit area. If the mineral is federal mineral, indicate as federal mineral, but provide the name of the claim holder or lease holder.

Surface and Mineral Owner(s):

Hydro Resources Corporation
4011 Mesa Verde NE
Albuquerque, NM 87110
Phone: (505) 266-2500
Fax: (505) 266-2900

GCM, Inc.
2219 Vista Larga NE
Albuquerque, NM 87106
Phone: (906) 500-0643
Fax: (505) 243-3329

C. Provide information on any Cultural Resource Survey that may have been performed on the site. The survey would have been provided to the landowner or land management agency. Please provide the following: author, title, date and report number.

None/Not Applicable. The drill sites are located within an area of prior mining activities and for the most part on previously excavated and graded bedrock benches. Most access roads are already in place from the prior operation.

D. Provide information on any vegetation or wildlife surveys that may have been performed on the site.

None/Not Applicable. The drill sites are located within an area of prior mining activities and for the most part on previously excavated and graded bedrock benches. Most access roads are already in place from the prior operation.

3. MAPS AND LOCATION (302.D.2)

A. Provide a legal description of the proposed site (i.e. Township(s), Range(s) and Section(s) NM PLSS, as well as GPS coordinates corresponding to each proposed drill hole.

Proposed Permit Area Legal Description:

T15S R7W S26 Hillsborough Quadrangle 1996

Proposed Drill Hole/Exploration Site GPS Coordinate(s):

1. List the drill hole/exploration name and the GPS Coordinate for each site.

2. Include datum/coordinate system of GPS coordinates (i.e. decimal degrees, UTM Zone 13, UTM Zone 12, NAD 27, NAD 1983, WGS 1984, etc.).

The chart on the following page gives this information.

Hole	N_StPln27*	E_StPln27*	N_NAD83_Z13**	N_NAD83_
U	715400	591930	3650413.906	263145.91
T	716000	591430	3650600.892	262998.43
JK-15	716125	591550	3650638.007	263036.03
JK-13	715850	591600	3650553.776	263049.02
JK-14	716000	591800	3650597.855	263111.21
JK-12V	715900	592230	3650563.845	263241.45
S	716000	592050	3650595.803	263187.41
N-1; N-2	716300	591625	3650690.732	263060.33
P	716200	591750	3650659.226	263097.61
JK-16	716250	591900	3650673.235	263143.74
R-1; R-2	716100	592250	3650624.641	263249.19
K	716500	591675	3650751.282	263077.21
I	716600	591500	3650783.199	263024.69
G	716800	591500	3650844.160	263026.33
D	717000	591725	3650903.273	263096.56
C	717100	591800	3650933.138	263120.24
A	717200	591800	3650963.618	263121.06
JK-1	717250	591900	3650978.037	263151.95
NE-G	717300	592010	3650992.374	263185.89
NE-E	717400	592050	3651022.526	263198.90
JK-2	717400	592100	3651022.116	263214.14
NE-D; JK-3	717500	592100	3651052.596	263214.96
NE-C	717600	592250	3651081.845	263261.50
NE-B	717700	592235	3651111.710	263285.18
JK-4	717500	592400	3651050.133	263306.40
NE-F	717350	592400	3651004.413	263305.17
B	717200	592440	3650958.364	263316.13
JK-5	717175	592725	3650948.405	263402.79
JK-6	717075	592575	3650919.156	263356.25
E	717000	592250	3650898.963	263256.58
H	716800	592200	3650838.413	263239.70
JK-7	716925	592725	3650872.204	263400.74
JK-8	716975	592925	3650885.802	263462.11
F	716900	592550	3650866.021	263347.20
JK-9	716725	592675	3650811.654	263383.86
J-1; J-2	716600	592600	3650774.169	263359.97
L	716500	592775	3650742.253	263412.49
M	716400	592500	3650714.030	263327.85
O	716300	592750	3650681.497	263403.23
Q	716200	592250	3650652.659	263341.45
JK-10	716300	592900	3650680.266	263448.95
JK-11	716200	592700	3650651.428	263387.17

*Coordinates in NM State Plane West, 1927
**Coordinates in UTM NAD83, Zone 13

B. Provide a topographic map(s) of at least 1 inch = 2,000 feet or appropriate scale for the size of disturbance (i.e. a 1:24,000 USGS Quadrangle map). The map name and at least two edges of the map (i.e. bottom and side edge) clearly showing all areas of land to be disturbed by the proposed exploration and reclamation. If the area to be explored contains the following features, show them on the map(s):

See Attachment B:

1) 1:24000 Hillsboro USGS Topo with permit boundary and drill holes and roads in red.

2) 1:6000 Portion of Hillsboro USGS Topo with perrmit boundary, proposed drill holes and roads in red, patents in blue, lodes in green, placers in yellow, historic facilities, diversion channels, and one dump to the NE.

3) 1:6000 Mine Topo showing historic mining, permit boundary, proposed drill holes and roads in red, patents in blue, lodes in green, placers in yellow, historic facilities, diversion channels, and one dump to the NE.

Provide detailed written driving directions to access the site.

- **Take I 25 south to about 12 miles south of Truth or Consequences.**
- **Turn west on State Highway 152 (Highway to Hillsboro - Silver City).**
- **Drive approximately 10 miles west on state Highway 152**
- **About ¼ mile after the road turns to the south, take the county road to the west towards Animas Peak**
- **Stay on the dirt road through the security gate and follow the dirt road to the pit area.**
- **There you can find the proposed drill sites.**

4. EXPLORATION DESCRIPTION (302.D.3 & 4)

A. List the proposed exploration dates:

Start Date: February 15, 2011
End Date: December 31, 2011

B. List the mineral or minerals to be explored for:

Copper (Cu); Molybdenum (Mo); Gold (Au); Silver (Ag).

C. Check the box beside the box beside the proposed method(s) of exploration.

Fluid drilling.

D. List the following approximate proposed disturbance for each:

1. Drill Hole Volume:

47 holes will be drilled. 45 of these will be a maximum of 1200' deep and 3.8" in diameter. Two of the holes will be a maximum of 2000' deep. The maximum total excavation volume for all holes will be approximately 5062 cubic feet or approximately 188 cubic yards.

2. Surface Disturbance:

Construction of pads for 17 drill holes will not be necessary because drilling will occur on previously excavated and graded bedrock benches.

Four pairs of holes (N-1 & N-2; R-1 & R-2; NE-D & JK-3, and J-1 & J-2) will be drilled from the same drill pad.

The chart on the following page illustrates the surface disturbance for each of the 47 drill holes as well as the total drill pad surface disturbance.

Hole	Pad Width	Pad Length	Total Pad Sq. Footage
U	60	100	6000
T	*	*	*
JK-15	*	*	*
JK-13	*	*	*
JK-14	*	*	*
JK-12V	*	*	*
S	*	*	*
N-1; N-2**	60	100	6000
P	60	100	6000
JK-16	60	100	6000
R-1; R-2**	60	100	6000
K	60	100	6000
I	*	*	*
G	*	*	*
D	*	*	*
C	*	*	*
A	*	*	*
JK-1	*	*	*
NE-G	*	*	*
NE-E	60	100	6000
JK-2	60	100	6000
NE-D; JK-3**	60	100	6000
NE-C	60	100	6000
NE-B	60	100	6000
JK-4	60	100	6000
NE-F	60	100	6000
B	60	100	6000
JK-5	60	100	6000
JK-6	60	100	6000
E	*	*	*
H	*	*	*
JK-7	60	100	6000
JK-8	60	100	6000
F	60	100	6000
JK-9	60	100	6000
J-1; J-2**	60	100	6000
L	60	100	6000
M	60	100	6000
O	60	100	6000
Q	*	*	*
JK-10	60	100	6000
JK-11	*	*	*
		Total Pad Construction: 150,000 sq. feet 3.45 acres	

* ***Drill site on prior bedrock mine shelf or otherwise previously scraped ground***

** ***Drilled from same drill pad***

E. Describe the typical equipment to be used for the exploration operations.

Truck-mounted diamond core drill.
A light plant and generator.
500 gallon drilling fluid mixing system.
Vehicles for crew transport.
Water truck.

F. Road(s).

Most of the necessary access roads are already in place from the prior mining operations.

Additional road building will be necessary as set forth in the table on the following page. Standard road width of 15' is used, except where blading will be necessary, in which case a width of 20' is used.

Hole	New Road Width	New Road Length	New Road Sq. Footage
U	*	*	*
T	*	*	*
JK-15	*	*	*
JK-13	*	*	*
JK-14	*	*	*
JK-12V	*	*	*
S	*	*	*
N-1; N-2**	*	*	*
P	*	*	*
JK-16	*	*	*
R-1; R-2**	15	100	1500
K	15	135	2025
I	15	122	1830
G	*	*	*
D	*	*	*
C	*	*	*
A	*	*	*
JK-1	*	*	*
NE-G	*	*	*
NE-E	20	60	1200
JK-2	*	*	*
NE-D; JK-3**	20	150	2400
NE-C	15	185	2775
NE-B	20	170	3400
JK-4	15	300	4500
NE-F	*	*	*
B	15	70	1050
JK-5	*	*	*
JK-6	15	100	1500
E	*	*	*
H	*	*	*
JK-7	20	150	3000
JK-8	*	*	*
F	15	175	2625
JK-9	*	*	*
J-1; J2**	15	130	1950
L	15	250	3750
M	15	210	3150
O	15	200	3000
Q	*	*	*
JK-10	15	155	2325
JK-11	15	115	1725
		Total New Road Construction 43,705 sq. feet 1 acre	

* ***Drill site accessible by existing road***

** ***Same drill pad***

G. Describe (location and size) any support facility disturbances (equipment staging, storage and/or lay down areas, vehicle parking, temporary housing and/or trailers) to be created or situated on the site during exploration operations.

Existing building and core storage area.

TOTAL ACREAGE TO BE DISTURBED: 4.25 acres

5. CHEMICAL USE (302.D.4)

A. List all chemicals, and include Material Safety Data Sheets (MSDS), for any chemicals proposed to be used by the exploration operation, including but not limited to any drilling mud, polymers, down-hole bit lubricants, lost circulation materials (LCM), or any other drilling additives, fuel and lubricants. Material Safety Data Sheets (MSDS) describing must be included. If any water is to be hauled onsite, please provide source information and intended use.

Name	Use
EZ-Mud	**Shale inhibitor**
G-Stop	**Drilling mud additive**
Hole Plug ¾	**Fluid Loss Additive**
Linseed Soap	**Lubricant**
Quik-Gel Gold	**Viscosifier**
Soda ash	**Buffer**
Quikrete	**Hydraulic cement for general construction**

***See* Attachment C:** **MSDSs for Above Products.**

B. Describe in detail a plan for the containment, use and disposal of all chemicals listed above:

Drilling mud and additives will be stored in metal tanks and disposed of in drilling holes after drilling is complete.

6. GROUND WATER INFORMATION (302.D.5)

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

Depth to ground water (ft.): **5' to 50'**

TDS concentration (mg/L): **< 1,000 mg/L**

B. What is the source of this information?

Raugust, J.S., 2003, The Natural Defenses of Copper Flat, Sierra County, New Mexico, New Mexico Bureau of Geology and Mineral Resources Open File Report No 475, New Mexico Bureau of Geology and Mineral Resources, Socorro, New Mexico.

Newcomer, R.W., 1993, Hydrologic assessment, Copper Flat Project, Sierra County, New Mexico, John W. Shomaker, Inc., Albuquerque, New Mexico.

Steffen, Robertson and Kirsten, Inc., December 1997, Copper Flat Mine, Compilation of Pit Lake Studies, Steffen, Robertson and Kirsten, Inc, Reno, Nevada.

C. Will dewatering activities be conducted: **No**

7. RECLAMATION AND OPERATION PLAN (302.D.6)

A. Describe in general how the operation will be operated to salvage topsoil, best prevent erosion, protect wildlife, and meet the requirements of reclamation described above. Include the removal and storage of excavated material and the construction of roads. Describe how these facilities will be protected from erosion. If applicable, describe dewatering activities, the location and construction of mud pits and drill pads and any other activities causing disturbance.

None/Not Applicable. The drill sites are located within an area of prior mining activities and for the most part on previously excavated and graded bedrock benches. Most access roads are already in place from the prior operation.

B. Describe in general how recontouring, topsoil or topdressing, and re-establishment of vegetation will be conducted. If no revegetation is planned, provide a justification as to why none is needed.

None/Not Applicable. The drill sites are located within an area of prior mining activities and for the most part on previously excavated and graded bedrock benches. Most access roads are already in place from the prior operation.

C. Where revegetation is to be conducted, describe the plant species to be used in the re-establishment of vegetation.

None/Not Applicable. The drill sites are located within an area of prior mining activities and for the most part on previously excavated and graded bedrock benches. Most access roads are already in place from the prior operation.

D. Proposed Reclamation dates:

None/Not Applicable. The drill sites are located within an area of prior mining activities and for the most part on previously excavated and graded bedrock benches. Most access roads are already in place from the prior operation.

E. If this is a drilling operation each drill hole shall be plugged from total depth to within 2 feet of the original ground surface or the collar of the hole, whichever is lower, with a column of cement, high density bentonite clay or other materials specified in the permit. If the approved plugging material is not cement, then the top ten feet of the column must be a cement plug. The hole shall be backfilled with topdressing or topsoil from above the cement plug to the original ground surface. The hole shall be plugged as soon as is practical after drilling is complete, but no later than 30 days after completion of drilling; however, if a water bearing stratum is encountered, the hole shall be plugged as soon as practicable and satisfy the requirements of the Office of the State Engineer and the New Mexico Environment Department for proper plugging of such holes. This plugging requirement may be waived if the State Engineer issues a permit for a well for the exploration drill hole. Describe how drill holes will be plugged. What plugging methods will be employed where groundwater is encountered versus holes where no groundwater is encountered? (Plugging methods must comply with 19.27.4 NMAC of the State Engineer Office's plugging and abandonment requirements.)

Drilling holes will be filled with drilling mud from total depth to ten feet below surface. A cement plug will be placed from ten feet below surface to the existing ground surface.

F. Describe how the reclamation of portals, drilling mud and/or waste pits, adits, shafts, ponds, roads or other disturbances will be performed.

All drilling mud not used to refill drilling holes will be removed from the site in metal containers. No mud pits will be used. All access roads are already in place from the prior operation and will remain in place for future operations.

8. PERMIT FEES (302.I.2)

A. Financial assurance must be posted with Mining and Minerals Division prior to approval of this application. The acceptable forms of financial assurance are surety bonds, letters of credit, or cash accounts described in 19.10.12.1208 NMAC. Provide an estimate of the proposed financial assurance required by Subpart 12.

On request, the Permittee will purchase a Certificate of Deposit for the amount of $414,600.00, payable to the Mining and Minerals Division. This amount will give financial assurance for reclamation of even a greater amount of surface disturbance and drill hole abandonment than could possibly occur as contemplated by this application. This financial assurance amount was calculated using the Mining and Minerals Division formula as follows:

Drill Hole Abandonment:

45 holes x 1200' per hole x $8.25 per foot* = $445,500
2 holes x 2000' per hole x $8.25 per foot* = $33,000

* **Using per foot amount for 501' to 1000' holes, rather than the smaller per foot amount that would be applicable to 1200' or 2000' holes.**

Surface Disturbance:

1 acre x $5,400	**$5,400**
4 acres x $3,300/acre	**$13,200**
Total:	**$18,600****

** **Assumes a greater amount of surface disturbance than will occur**

Total FA: $497,100

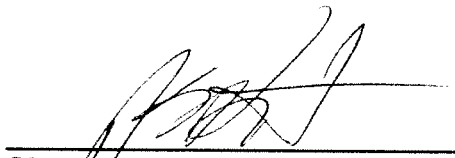
B. Attach the permit fees as determined pursuant to Subpart 2. The application fee for a minimal impact exploration permit is $500.00.

A check for $500.00 accompanies this application.

9. CERTIFICATION REQUIREMENT (302.I.3 & 4)

Each application shall be signed by the applicant or an authorized agent of the applicant for the operation with the following certification made
(Certification does not require notarization):

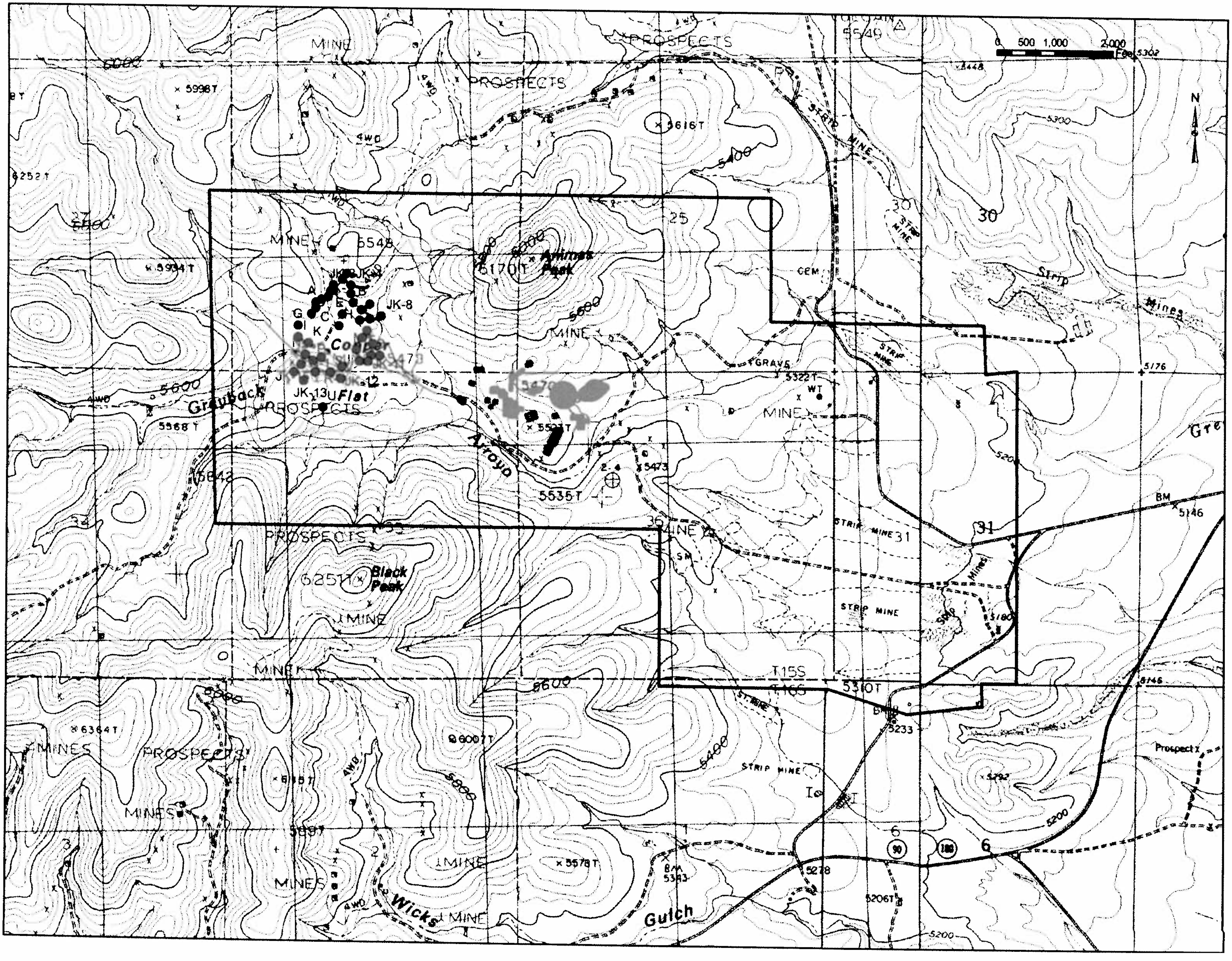
**I certify that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals responsible for obtaining the information; I believe the submitted information is true, accurate, and complete. I agree to comply with the reclamation requirements set forth in this permit application and related correspondence, the New Mexico Mining Act and the Rules. Further, I certify that I am not in violati
on of any other obligation under the New Mexico Mining Act or the Rules adopted pursuant to that Act and I allow the Director to enter the permit area, without delay, for the purposes of conducting inspections during exploration and reclamation.**



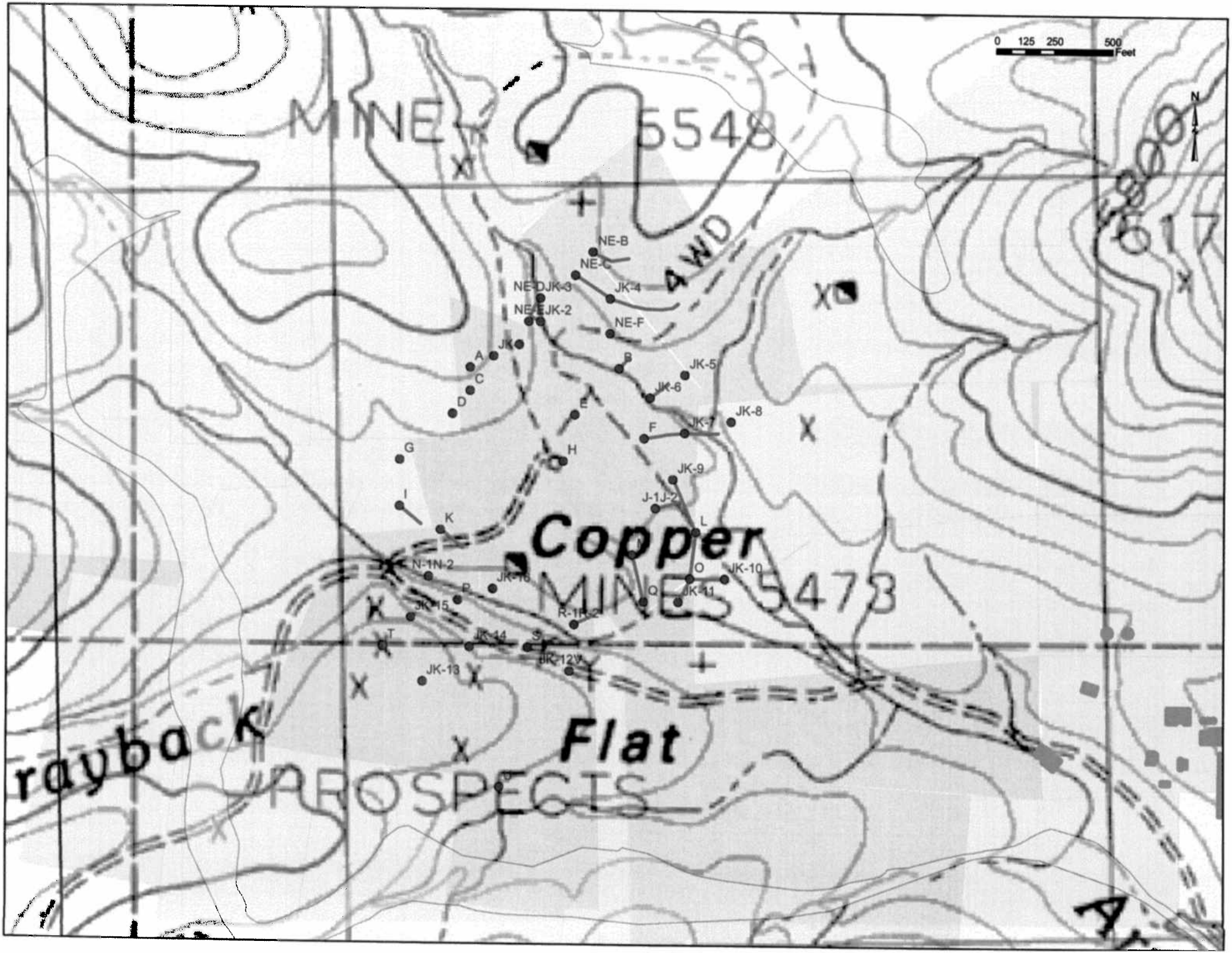
Signature of Permittee or Authorized Agent

Name: Steve Raugust, PG
Title/Position: Project Manager
Date: December 21, 2010

EXHIBIT B



0 500 1,000 2,000
Feet
N
PROSPECTS
MINE
Animas Peak
6170T
Cooper Flat
JK-8
JK-13
Grayback
Arroyo
Black Peak
6251T
STRIP MINE
Strip Mines
GRAVS
CEM
5322T
5535T
5473
5310T
T15S
T16S
Wicks Gulch
Prospect
5146
5233
5278
BM 5343
6007T
5578T
6364T
5998T
5994T
5616T
5568T
5842
25
30
31
36
6
90
180


0 125 250 500 Feet
N
MINES 5548
MINES 5473
PROSPECTS
Copper
Flat
rayback
4 WD
NE-B
NE-C
NE-D
NE-E
NE-F
JK-1
JK-2
JK-3
JK-4
JK-5
JK-6
JK-7
JK-8
JK-9
JK-10
JK-11
JK-12
JK-13
JK-14
JK-15
JK-16
A
B
C
D
E
F
G
H
I
J-1
J-2
K
L
N-1
N-2
O
P
Q
R-1
R-2
S
T

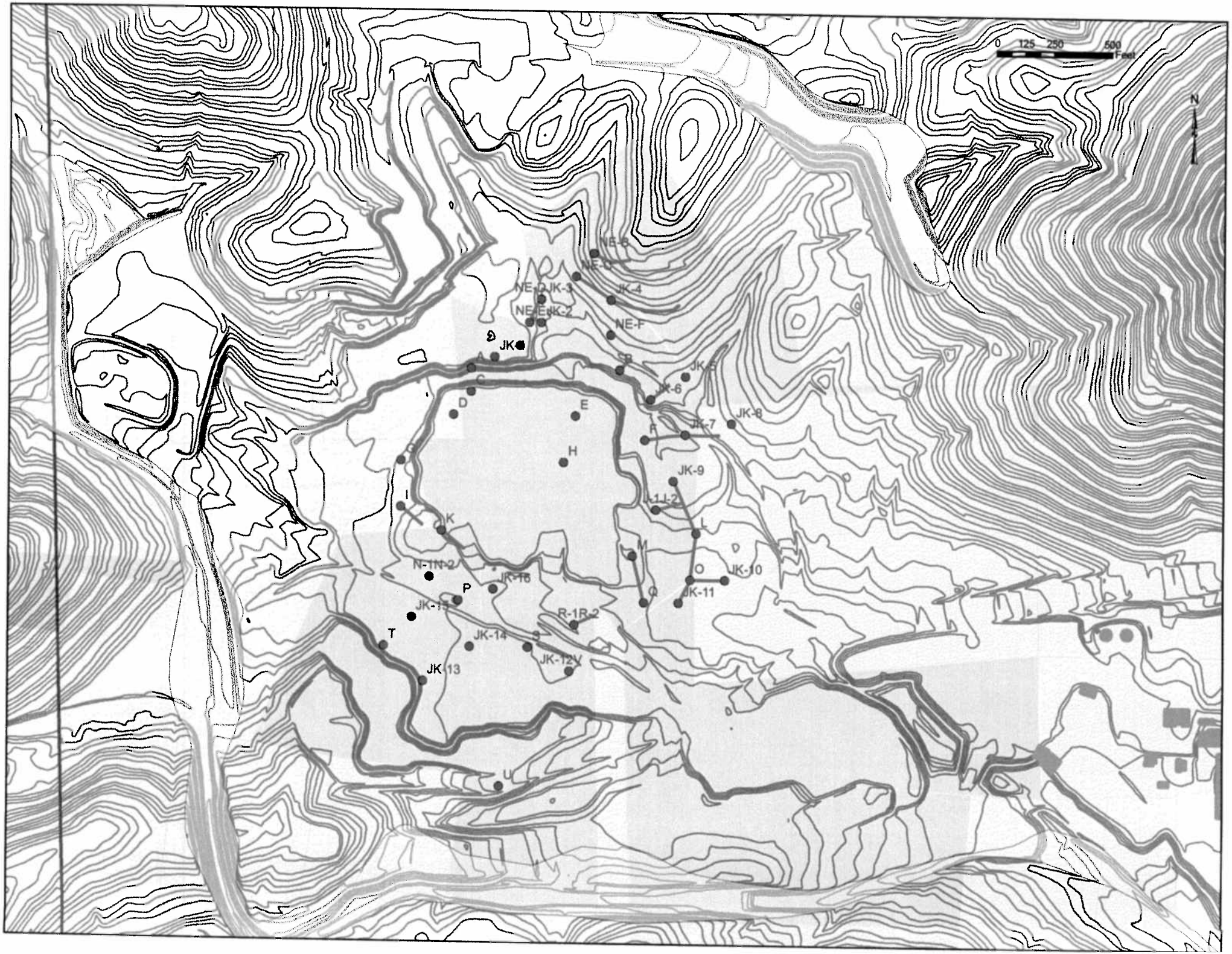

0 125 250 500 Feet
N
NE-B
NE-C
NE-D
JK-3
JK-4
NE-E
JK-2
NE-F
JK-1
JK-5
JK-6
JK-7
JK-8
JK-9
JK-10
JK-11
JK-12
JK-13
JK-14
JK-15
JK-16
R-1R-2
N-1N-2
A
B
C
D
E
F
G
H
I
J
K
L
M
O
P
Q
S
T
U

EXHIBIT C

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **EZ-MUD®**

Revision Date: 01-Apr-2009

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: EZ-MUD®
Synonyms: None
Chemical Family: Blend
Application: Shale Inhibitor

Manufacturer/Supplier

Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By

Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Hydrotreated light petroleum distillate	64742-47-8	10 - 30%	200 mg/m^3	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview

May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed.

4. FIRST AID MEASURES

Inhalation

If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin

Wash with soap and water. Get medical attention if irritation persists. Remove contaminated shoes and discard.

Eyes

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion

Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

Notes to Physician

Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	> 200
Flash Point/Range (C):	Not Determined
Flash Point Method:	PMCC
Autoignition Temperature (F):	> 392
Autoignition Temperature (C):	> 200
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Use water spray to cool fire exposed surfaces.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 2, Flammability 1, Reactivity 0
HMIS Ratings: Health 2, Flammability 1, Reactivity 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Storage Information Store away from oxidizers. Keep container closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Organic vapor respirator with a dust/mist filter. In high concentrations, supplied air respirator or a self-contained breathing apparatus.

Hand Protection Impervious rubber gloves.

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	White to gray
Odor:	Mild hydrocarbon
pH:	6-8
Specific Gravity @ 20 C (Water=1):	1.0
Density @ 20 C (lbs./gallon):	8.3
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	347
Boiling Point/Range (C):	175
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	0.002
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	70
Evaporation Rate (Butyl Acetate=1):	< 1
Solubility in Water (g/100ml):	Partially soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.
Skin Contact	May cause skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.
Aggravated Medical Conditions	Lung disorders.

Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	None known.

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	BOD(28 Day): 40% of COD
Bio-accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: >1000 mg/l (Pimephales promelas)
Acute Crustaceans Toxicity:	TLM48: 98 mg/l (Acartia tonsa)
Acute Algae Toxicity:	EC50: 16.70 mg/l (Skeletonema costatum)

Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	D2B Toxic Materials

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	Jan. 13, 2009
	8750-53 Ave.	PHONE:	780-468-4064
	Edmonton, AB T6E 5G2	FAX:	780-469-1899
PRODUCT NAME:	**G-STOP**		
PRODUCT USE:	Drilling mud additive.		
CHEMICAL FAMILY:	Polyacrylamide	CAS#:	Not available

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION:	Not a controlled product under WHMIS
WORKPLACE HAZARD:	Treat as a nuisance dust.

TRANSPORTATION OF DANGEROUS GOODS (TDG)

PROPER SHIPPING NAME:	Not regulated under TDG
TDG CLASSIFICATION:	Not applicable
UN NUMBER (PIN):	Not applicable
PACKING GROUP:	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV

Contains no WHMIS controlled ingredients.

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY:	[ ]EYE CONTACT [ ]SKIN [ ]INHALATION [ ]INGESTION
EYE CONTACT:	May cause slight irritation and/or redness.
SKIN CONTACT:	May cause slight irritation some cases.
INGESTION:	Low acute oral toxicity. May cause nausea and vomiting.
INHALATION:	May cause irritation of the respiratory tract, including sneezing and coughing.
CARCINOGENICITY:	No information available.
TERATOGENICITY:	No information available.
REPRODUCTIVE TOXICITY:	No information available.

MUTAGENICITY:	No information available.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Wash thoroughly with soap and water. If irritation develops or persists, obtain medical attention. Wash contaminated clothing prior to reuse.
EYE CONTACT:	Flush with gently flowing warm water for 15 minutes or until irritation subsides. If irritation persists, obtain medical attention.
INGESTION:	Do not induce vomiting. Give 2-3 glasses of water. If symptoms occur, obtain medical attention. Never give anything by mouth if patient is unconscious, rapidly losing consciousness or convulsing.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration as required. If breathing difficulties or distress continues obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	White granular powder; no odour	
SPECIFIC GRAVITY:	0.8	
BOILING POINT (°C):	Not available	
MELTING POINT (°C):	Not available	
SOLUBILITY IN WATER:	Insoluble	pH: Not applicable
PERCENT VOLATILE BY VOLUME:	Not available	
EVAPORATION RATE:	Not available	
VAPOUR PRESSURE (mmHg):	Not available	
VAPOUR DENSITY (air = 1):	Not available	
BULK DENSITY:	Not available	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Carbon dioxide, dry chemical, foam, in preference to a water spray.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel. Move containers from fire area if possible.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	As with most organic powders, flammable dust clouds may be formed in air. Avoid creating dust. Avoid sources of ignition.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX] UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Avoid contact with strong oxidizers. Avoid wet, damp or humid conditions, extremes of temperature, and ignition sources.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon and nitrogen, various hydrocarbons, and/or hydrogen cyanide upon combustion
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX] MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Use approved dust mask in absence of adequate ventilation. Use approved respirators with dust cartridges if TLV is exceeded.
VENTILATION:	Use in well-ventilated area, or use local exhaust ventilation, process enclosure or other engineering controls to maintain dust level below TLV.
PROTECTIVE GLOVES:	Use gloves, if needed, to avoid prolonged or repeated skin contact.
EYE PROTECTION:	Use safety glasses or goggles.
OTHER PROTECTIVE EQUIPMENT (Specify):	As necessary to prevent contact. Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid prolonged or repeated breathing of dust and contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Cleanse skin thoroughly after contact, before breaks and meals and at end of work period. Product is readily removed from skin by washing thoroughly with soap and water. Store in a cool, dry location away from incompatibles. Store in original container.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Avoid creating dust clouds. Remove ignition sources. Sweep up or vacuum dry material and flush spill area with water. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal. This product or its solutions should not be allowed to enter waterways without treatment.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. It may be possible to dispose of spills of non-hazardous materials in a landfill; check with local operator.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	January 13, 2009	BY:	Product safety committee
SUPERSEDES:	January 3, 2006	PHONE:	780-440-4923

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **HOLEPLUG® 3/4**

Revision Date: 03-Jan-2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: HOLEPLUG® 3/4
Synonyms: None
Chemical Family: Mineral
Application: Fluid Loss Additive

Manufacturer/Supplier

Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By

Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Crystalline silica, cristobalite	14464-46-1	0 - 1%	0.025 mg/m^3	$1/2 \times \frac{10\ mg/m^3}{\%SiO2 + 2}$
Crystalline silica, tridymite	15468-32-3	0 - 1%	0.05 mg/m^3	$1/2 \times \frac{10\ mg/m^3}{\%SiO2 + 2}$
Crystalline silica, quartz	14808-60-7	1 - 5%	0.025 mg/m^3	$\frac{10\ mg/m^3}{\%SiO2 + 2}$
Bentonite	1302-78-9	60 - 100%	Not applicable	Not applicable

More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

3. HAZARDS IDENTIFICATION

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD
May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media All standard firefighting media.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0
HMIS Ratings: Flammability 0, Reactivity 0, Health 0*

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption	Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE

Handling Precautions	This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.
Storage Information	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container. Product has a shelf life of 36 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.
Respiratory Protection	Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.
Hand Protection	Normal work gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Tan to Gray
Odor:	Mild earthy
pH:	7.5
Specific Gravity @ 20 C (Water=1):	2.12
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	51- 60
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Insoluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A). Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).
Skin Contact	May cause mechanical skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	None known
Aggravated Medical Conditions	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Chronic Effects/Carcinogenicity

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Other Information

For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined

Persistence/Degradability Not determined

Bio-accumulation Not Determined

Ecotoxicological Information

Acute Fish Toxicity: Not determined
Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard Chronic Health Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	D2A Very Toxic Materials Crystalline silica

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	Dec. 9, 2008
	8750-53 Ave.	PHONE:	780-468-4064
	Edmonton, AB T6E 5G2	FAX:	780-469-1899
PRODUCT NAME:	**LINSEED SOAP**		
PRODUCT USE:	Lubricant.		
CHEMICAL FAMILY:	Not available	CAS#:	Not available

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION:	Not WHMIS controlled.
WORKPLACE HAZARD:	Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDG)

PROPER SHIPPING NAME:	Not regulated under TDG
TDG CLASSIFICATION:	Not applicable
UN NUMBER (PIN):	Not applicable
PACKING GROUP:	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Mouse	ACGIH-TLV

No hazardous ingredients available.

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY:	[ ] EYE CONTACT [ ] SKIN [ ] INHALATION [ ] INGESTION
EYE CONTACT:	May cause slight irritation.
SKIN CONTACT:	May cause slight irritation.
INGESTION:	No information available. Not considered toxic based on information available for similar materials.
INHALATION:	Not a likely source of contact during normal use.
CARCINOGENICITY:	No information available.
TERATOGENICITY:	No information available.

REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICITY:	No information available.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Wipe away excess. Remove contaminated clothing and wash affected area thoroughly with soap and water. If irritation develops or persists, obtain medical attention.
EYE CONTACT:	Immediately flush with gently flowing warm water until material is removed and irritation ceases. If irritation persists, obtain medical attention.
INGESTION:	If conscious give 1 to 2 glasses of water and induce vomiting; keep head below hips to prevent aspiration of vomitus. Obtain medical attention. Never give anything by mouth if patient is unconscious, rapidly losing consciousness or convulsing.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration if required. If breathing difficulties, or distress, continue obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Brown paste; slight soapy odour	
SPECIFIC GRAVITY:	Not applicable	
BOILING POINT (°C):	100	
MELTING POINT (°C):	0	
SOLUBILITY IN WATER:	Soluble	pH: 9.5 – 11.5
PERCENT VOLATILE BY VOLUME:	Not applicable	
EVAPORATION RATE:	Not applicable	
VAPOUR PRESSURE (mmHg):	Not applicable	
VAPOUR DENSITY (air = 1):	Not applicable	
BULK DENSITY	Not applicable	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not flammable
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Use media suitable for packaging and surrounding materials.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX]	UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	None known.	
CONDITIONS OF REACTIVITY:	None known.	
HAZARDOUS DECOMPOSITION PRODUCTS:	Not determined.	
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX]	MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Not applicable.
VENTILATION:	Not applicable.
PROTECTIVE GLOVES:	Personal preference.
EYE PROTECTION:	Safety glasses with side-shields recommended.
OTHER PROTECTIVE EQUIPMENT (Specify):	Wear clothing adequate to protect against exposure. Ensure eye-wash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Wash thoroughly after handling. Avoid contact with eyes, skin or clothing. Launder contaminated clothing before reuse. No specific storage requirements.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Scoop up excess material. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal. Wipe up remaining spill with absorbent compound to prevent slipping hazard.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. This material can be landfilled in most areas; check with local operator. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	December 9, 2008	BY:	Product safety committee
SUPERSEDES:	December 19, 2005	PHONE:	780-440-4923

HALLIBURTON

SAFETY DATA SHEET (2001/58/EC)

Product Trade Name: **QUIK-GEL GOLD™**

Revision Date: 12-Sep-2007

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of Substances or Preparation

Product Trade Name: QUIK-GEL GOLD™
Synonyms: None
Chemical Family: Mineral
Application: Viscosifier

Company Undertaking Identification

Halliburton Manufacturing Services, Ltd.
Deveron Facility, Howemoss Place
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GS
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

Prepared By

Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. HAZARDS IDENTIFICATION

Risk Phrases
None

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD
May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

3. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	EINECS	UK WEL	Germany MAK/TRK	Netherlands MAC	EEC Classification
Crystalline silica, cristobalite	14464-46-1	0 - 1%	238-455-4	0.1 mg/m³	0,15 mg/m³	0,075 mg/m³	Not applicable
Crystalline silica, tridymite	15468-32-3	0 - 1%	239-487-1	0.1 mg/m³	Not applicable	0,075 mg/m³	Not applicable
Crystalline silica, quartz	14808-60-7	1 - 5%	238-878-4	0.1 mg/m³	0,15 mg/m³	0,075 mg/m³	Not applicable
Bentonite	1302-78-9	60 - 100%	215-108-5	10 mg/m³	Not applicable	Not applicable	Not applicable

More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media All standard fire fighting media

Unsuitable Extinguishing Media None known.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE

Handling Precautions This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.

Storage Information Do not reuse empty container. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Keep from excessive heat. Product has a shelf life of 12 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.
Respiratory Protection	Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.
Hand Protection	Normal work gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	Tan
Odor:	Mild earthy
pH:	8.5-9.5 (3%)
Specific Gravity @ 20 C (Water=1):	2.5 - 2.6
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/m^3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m^3):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m^3):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Slightly soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated

Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure

Eye or skin contact, inhalation.

Inhalation

Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).

Skin Contact

May cause mechanical skin irritation.

Eye Contact

May cause eye irritation.

Ingestion

None known

Aggravated Medical Conditions

Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Chronic Effects/Carcinogenicity

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Other Information

For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined

Persistence/Degradability Not determined

Bio-accumulation Not Determined

Ecotoxicological Information

Acute Fish Toxicity: TLM96: 10000 ppm (Oncorhynchus mykiss)
Acute Crustaceans Toxicity: Not determined
Acute Algae Toxicity: Not determined

Chemical Fate Information Not determined

Other Information Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

EC Supply labeling Requirements This product is not subject to the labeling requirements of EC Directives 67/548/EEC and 88/379/EEC as amended.

Classification Crystalline silica is not classified as a carcinogen in EU Council Directives 67/548/EEC and 88/379/EEC.

Risk Phrases None

Safety Phrases None

EINECS Inventory This product, and all its components, complies with EINECS

Germany, Water Endangering Classes (WGK) WGK 0: Generally not water endangering.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **SODA ASH**

Revision Date: 18-Jul-2007

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Statement of Hazardous Nature Hazardous according to criteria of WorkSafe

Manufacturer/Supplier

Halliburton Australia Pty. Ltd.
53-55 Bannister Road
Canning Vale
WA 6155
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
NewZealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: SODA ASH
Synonyms: None
Chemical Family: Carbonate
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None
Poisons Schedule: None
Application: Buffer

Prepared By

Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	Australia NOHSC	ACGIH TLV-TWA
Sodium carbonate	497-19-8	60 - 100%	Not applicable	Not applicable

Total to 100%

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation.

Hazard Ratings

Flammability:	0
Toxicity:	1
Body Contact:	2
Reactivity:	0
Chronic:	0

Scale: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Unsuitable Extinguishing Media None known.

Special Exposure Hazards Decomposition in fire may produce toxic gases.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.

Storage Information Store away from acids. Store in a cool, dry location. Product has a shelf life of 36 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area. Localized ventilation should be used to control dust levels.
Respiratory Protection	Dust/mist respirator. (95%)
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Dust proof goggles.
Other Precautions	Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	White
Odor:	Odorless
pH:	11.5
Specific Gravity @ 20 C (Water=1):	2.5
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/m^3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m^3):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m^3):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Partially soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	105.99
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong acids.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.

Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation.
Skin Contact	Prolonged or repeated contact may cause skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	Irritation of the mouth, throat, and stomach.
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	None known.

Toxicity Tests

Oral Toxicity:	LD50: 4220 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Not applicable
Bio-accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	TLM24: 385 mg/l (Lepomis macrochirus)
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

EPG:	Not determined
IERG:	Not determined
Labels:	None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	Not Determined
US TSCA Inventory	All components listed on inventory.
EINECS Inventory	This product, and all its components, complies with EINECS
Classification	Xi - Irritant.
Risk Phrases	R36 Irritating to eyes.
Safety Phrases	S2 Keep out of reach of children. S22 Do not breathe dust. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Contact

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand Poisons Information System
Deunedin: -(03) 479 1200 (Normal Hours)
-(03) 474 0999 (Emergency)

Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

Cements

MATERIAL SAFETY DATA SHEET
(Complies with OSHA 29 CFR 1910.1200)

SECTION I: PRODUCT IDENTIFICATION

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Road, Suite 1300
Atlanta, GA 30329

Emergency Telephone Number
(770) 216-9580

Information Telephone Number
(770) 216-9580

MSDS K1
Revision: Feb-07

QUIKRETE® Product Name	Code #
QUIKRETE® PORTLAND CEMENT	1124
PORTLAND/POZZOLAN CEMENT	1118-35

PRODUCT USE: HYDRAULIC CEMENTS FOR GENERAL CONSTRUCTION AND REPAIR

SECTION II - HAZARD IDENTIFICATION

Route(s) of Entry: Inhalation, Skin, Ingestion
Acute Exposure: Product becomes alkaline when exposed to moisture. Exposure can dry the skin, cause alkali burns and affect the mucous membranes. Dust can irritate the eyes and upper respiratory system. Toxic effects noted in animals include, for acute exposures, alveolar damage with pulmonary edema.
Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis.
Carcinogenicity: Since Portland cement and blended cements are manufactured from raw materials mined from the earth (limestone, marl, sand, shale, etc.) and process heat is provided by burning fossil fuels, trace, but detectable, amounts of naturally occurring, and possibly harmful, elements may be found during chemical analysis. Under ASTM standards, Portland cement may contain 0.75 % insoluble residue. A fraction of these residues may be free crystalline silica. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs and possibly cancer. There is evidence that exposure to respirable silica or the disease silicosis is associated with an increased incidence of Scleroderma, tuberculosis and kidney disorders.

Carcinogenicity Listings:		
	NTP:	Known carcinogen
	OSHA:	Not listed as a carcinogen
	IARC Monographs:	Group 1 Carcinogen

California Proposition 65: Known carcinogen

NTP: The National Toxicology Program, in its "Ninth Report on Carcinogens" (released May 15, 2000) concluded that "Respirable crystalline silica (RCS), primarily quartz dusts occurring in industrial and occupational settings, is *known to be a human carcinogen*, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to RCS and increased lung cancer rates in workers exposed to crystalline silica dust (reviewed in IAC, 1997; Brown *et al.*, 1997; Hind *et al.*, 1997)

IARC: The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz or cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans* (Group 1)." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances or studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates." (1997)

Signs and Symptoms of Exposure: Symptoms of excessive exposure to the dust include shortness of breath and reduced pulmonary function. Excessive exposure to skin and eyes especially when mixed with water can cause caustic burns as severe as third degree.

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure. Exposure to crystalline silica or the disease silicosis is associated with increased incidence of scleroderma, Tuberculosis and possibly increased incidence of kidney lesions.

Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis. (May contain trace (<0.05 %) amounts of chromium salts or compounds including hexavalent chromium, or other metals found to be hazardous or toxic in some chemical forms. These metals are mostly present as trace substitutions within the principal minerals)

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure.

SECTION III - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS No.	PEL (OSHA) mg/M^3	TLV (ACGIH) mg/M^3
Portland Cement	65997-15-1	5	5
May contain:			

Silica Sand, crystalline	14808-60-7	$\frac{10}{\%SiO_2+2}$	0.05 (respirable)
Pulverized Limestone	01317-65-3	5	5
Fly Ash	68131-74-8	5	5
Gypsum	10101-41-4	5	5
Lime	01305-62-0	5	5

Although these products contain no intentionally added Silica, they may contain small amounts of silica occurring as natural impurities in the other raw materials.

Other Limits: National Institute for Occupational Safety and Health (NIOSH). Recommended standard maximum permissible concentration=0.05 mg/M^3 (respirable free silica) as determined by a full-shift sample up to 10-hour working day, 40-hour work week. See NIOSH Criteria for a Recommended Standard Occupational Exposure to Crystalline Silica.

SECTION IV – First Aid Measures

Eyes: Immediately flush eye thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.
Skin: Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment if irritation or inflammation develops or persists. Seek immediate medical treatment in the event of burns.
Inhalation: Remove person to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. Seek medical help if coughing and other symptoms do not subside. Inhalations of large amounts of Portland cement require immediate medical attention.
Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

SECTION V - FIRE AND EXPLOSION HAZARD DATA

Flammability: Noncombustible and not explosive.
Auto-ignition Temperature: Not Applicable
Flash Points: Not Applicable

SECTION VI – ACCIDENTAL RELEASE MEASURES

If spilled, use dustless methods (vacuum) and place into covered container for disposal (if not contaminated or wet). Use adequate ventilation to keep exposure to airborne contaminants below the exposure limit.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

Do not allow water to contact the product until time of use. DO NOT BREATHE DUST. In dusty environments, the use of an OSHA, MSHA or NIOSH approved respirator and tight fitting goggles is recommended.

SECTION VIII – EXPOSURE CONTROL MEASURES

Engineering Controls: Local exhaust can be used, if necessary, to control airborne dust levels.

Personal Protection: The use of barrier creams or impervious gloves, boots and clothing to protect the skin from contact is recommended. Following work, workers should shower with soap and water. Precautions must be observed because burns occur with little warning -- little heat is sensed.

WARN EMPLOYEES AND/OR CUSTOMERS OF THE HAZARDS AND REQUIRED OSHA PRECAUTIONS ASSOCIATED WITH THE USE OF THIS PRODUCT.

Exposure Limits: Consult local authorities for acceptable exposure limits

SECTION IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Gray to gray-brown colored powder. Some products available in white and other colors.

Specific Gravity:	2.6 to 3.15	**Melting Point:**	>2700°F
Boiling Point:	>2700°F	**Vapor Pressure:**	Not Applicable
Vapor Density:	Not Applicable	**Evaporation Rate:**	Not Applicable
Solubility in Water:	Slight	**Odor:**	Not Applicable

SECTION X - REACTIVITY DATA

Stability: Stable.
Incompatibility (Materials to Avoid): Material when mixed with water will react with Aluminum and other alkali and alkaline earth elements liberating hydrogen gas.
Hazardous Decomposition or By-products: None
Hazardous Polymerization: Will Not Occur.
Condition to Avoid: Keep dry until used to preserve product utility.

SECTION XI – TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Ingestion
Toxicity to Animals:
LD50: Not Available
LC50: Not Available
Chronic Effects on Humans: Conditions aggravated by exposure include eye disease, skin disorders and Chronic Respiratory conditions.
Special Remarks on Toxicity: Not Available

SECTION XII – ECOLOGICAL INFORMATION

Ecotoxicity: Not Available

BOD5 and COD: Not Available
Products of Biodegradation: Not available
Toxicity of the Products of Biodegradation: Not available
Special Remarks on the Products of Biodegradation: Not available

SECTION XIII – DISPOSAL CONSIDERATIONS

Waste Disposal Method: The packaging and material may be land filled; however, material should be covered to minimize generation of airborne dust. This product is not classified as a hazardous waste under the authority of the RCRA (40CFR 261) or CERCLA (40CFR 117&302).

SECTION XIV – TRANSPORT INFORMATION

DOT/UN Shipping Name: Non-regulated
DOT Hazard Class: Non-regulated
Shipping Name: Non-regulated
Non-Hazardous under U.S. DOT and TDG Regulations

SECTION XV – OTHER REGULATORY INFORMATION

US OSHA 29CFR 1910.1200: Considered hazardous under this regulation and should be included in the employers hazard communication program
SARA (Title III) Sections 311 & 312: Qualifies as a hazardous substance with delayed health effects
SARA (Title III) Section 313: Not subject to reporting requirements
TSCA (May 1997): All components are on the TSCA inventory list
Federal Hazardous Substances Act: Is a hazardous substance subject to statues promulgated under the subject act
Canadian Environmental Protection Act: Not listed
Canadian WHMIS Classification: Considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A, E- Corrosive Material) and subject to the requirements of Health Canada's Workplace Hazardous Material Information (WHMIS). This product has been classified according to the hazard criteria of the Controlled Products Regulation (CPR). This document complies with the WHMIS requirements of the Hazardous Products Act (HPA) and the CPR.

SECTION XVI – OTHER INFORMATION

HMIS-III:

Health –
0 = No significant health risk
1 = Irritation or minor reversible injury possible
2 = Temporary or minor injury possible
3 = Major injury possible unless prompt action is taken
4 = Life threatening, major or permanent damage possible

Flammability-
0 = Material will not burn
1 = Material must be preheated before ignition will occur

Physical Hazard-	2 = Material must be exposed to high temperatures before ignition 3 = Material capable of ignition under normal temperatures 4 = Flammable gases or very volatile liquids; may ignite spontaneously 0 = Material is normally stable, even under fire conditions 1 = Material normally stable but may become unstable at high temps 2 = Materials that are unstable and may undergo react at room temp 3 = Materials that may form explosive mixtures with water 4 = Materials that are readily capable of explosive water reaction

Abbreviations:

ACGIH	American Conference of Government Industrial Hygienists
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CFR	Code of Federal Regulations
CPR	Controlled Products Regulations (Canada)
DOT	Department of Transportation
IARC	International Agency for Research
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicity Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TWA	Time-weighted Average
WHMIS	Workplace Hazardous Material Information System

Revision #07-01, supersedes all previous revisions
Created: 10/25/2006
Last Updated: February 6, 2007

NOTE: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to silica contained in our products.
