

Appendix A

Boring Logs and Well Construction Diagrams

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)
Description and Identification of Soils (Visual - Manual Procedure)

DATE: 06/02/1999 09:18 PRJ#: General DRAWING: common\cboeru\GEOKEY CHECKED: MF APPROVED: MF DRAFTER: NCB

MAJOR DIVISIONS		GROUP SYMBOL	GRAPHIC SYMBOL	GROUP NAME
COARSE - GRAINED SOILS <50% Passing #200 Sieve	GRAVELS	CLEAN GRAVELS	GW	Well - graded gravel Well - graded gravel with sand
			GP	Poorly graded gravel Poorly graded gravel with sand
		GRAVELS WITH FINES	GW-GM	Well - graded gravel with silt Well - graded gravel with silt and sand
			GW-GC	Well - graded gravel with clay Well - graded gravel with clay and sand
		GP-GM	Poorly graded gravel with silt Poorly graded gravel with silt and sand	
		GP-GC	Poorly graded gravel with clay Poorly graded gravel with clay and sand	
		GM	Silty gravel Silty gravel with sand	
		GC	Clayey gravel Clayey gravel with sand	
	SANDS	CLEAN SANDS	SW	Well - graded sand Well - graded sand with gravel
			SP	Poorly graded sand Poorly graded sand with gravel
		SANDS WITH FINES	SW-SM	Well - graded sand with silt Well - graded sand with silt and gravel
			SW-SC	Well - graded sand with clay Well - graded sand with clay and gravel
			SP-SM	Poorly graded sand with silt Poorly graded sand with silt and gravel
			SP-SC	Poorly graded sand with clay Poorly graded sand with clay and gravel
SM	Silty sand Silty sand with gravel			
SC	Clayey sand Clayey sand with gravel			
FINE -GRAINED SOILS >50% Passing #200 Sieve	SILTS AND CLAYS	CL	Lean clay. Lean clay with sand or gravel. Sandy lean clay. Sandy lean clay with gravel. Gravelly lean clay. Gravelly lean clay with sand.	
		ML	Silt. Silt with sand or gravel. Sandy silt. Sandy silt with gravel. Gravelly silt. Gravelly silt with sand.	
		CH	Fat clay. Fat clay with sand or gravel. Sandy fat clay. Sandy fat clay with gravel. Gravelly fat clay. Gravelly fat clay with sand.	
		MH	Elastic silt. Elastic silt with sand or gravel. Sandy elastic silt. Sandy elastic silt with gravel. Gravelly elastic silt. Gravelly elastic silt with sand.	
		OL/OH	Organic soil. Organic soil with sand or gravel. Sandy organic soil. Sandy organic soil with gravel. Gravelly organic soil. Gravelly organic soil with sand.	

NOTE: For soils with two possible identifications a borderline symbol is used. A borderline symbol, such as CL/CH, will be used only after every effort has been made to place the soil into a single group. The first group symbol in the borderline symbol represents the predominant soil type and is described as CL/CH lean to fat clay.

Adapted from: Howard, Amster, K., 1986, *Visual Classification of Soils, Unified Soil Classification System*, Geotechnical Branch Training Manual No.5, second edition, Geotechnical Branch, Division of Research and Laboratory Services, Engineering and Research Center, Bureau of Reclamation, Denver, Colorado, January.



Key for the Description of Soil

DRAFTER: NCB

APPROVED: MF

CHECKED: MF

DRAWING: common\cboeru\GEOKEY

PRJ#: General

DATE: 06/02/1999 09:18

DENSITY / CONSISTENCY CLASSIFICATION

DENSITY OF COARSE-GRAINED SOILS

DENSITY	BLOWS PER FOOT*
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	OVER 50

CONSISTENCY OF FINE-GRAINED SOILS

CONSISTENCY	APPROX. BLOW COUNTS*
VERY SOFT - Thumb penetrates > 1 in.	<4
SOFT - Thumb penetrates = 1 in.	4 - 8
FIRM - Thumb penetrates > 0.25 in.	9 - 15
HARD - Thumbnail indents soil	15 - 30
VERY HARD - Thumbnail won't indent soil	>30

* Blows with a 140-pound hammer falling 30 inches required to drive the designated sampler 12 inches into undisturbed materials.

CONTACTS

CONTACT	APPROXIMATE
(Observed)	(+/- 2 Feet)

MINOR CONSTITUENTS

TRACE	<5%
FEW	5 - 10%
LITTLE	15 - 25%
SOME	30 - 45%
MOSTLY	50 - 100%

SAMPLE TYPES

UNOBSERVED INTERVAL		-
RING / THIN WALLED TUBE		3
OBSERVED INTERVAL		1

Condition #

SAMPLE HEADSPACE READINGS

Sample headspace measured with either a photoionization detector (PID) or a flame ionization detector (FID). Readings are recorded in parts per million (ppm). NR = no reading noted.

GRAIN-SIZE DESCRIPTIONS

- Boulders** Particles of rock that will not pass a 12-inch square opening.
- Cobbles** Particles of rock that will pass a 12-inch square opening and can be retained on a 3-inch sieve.
- Gravel** Particles of rock that will pass a 3-inch sieve and can be retained on a No. 4 (4.75 mm) sieve.
- Sand** Particles of rock that will pass a No.4 sieve and can be retained on a No. 200 (0.75 mm) sieve.
- Silt** Soil passing a No. 200 sieve that is nonplastic or very slightly plastic and that exhibits little or no strength when air dry.
- Clay** Soil passing a No. 200 sieve that can be made to exhibit plasticity within a range of water contents.



Key for the Description of Soil



BORING LOG OF IW1

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JPL

RN099455.0005.CA001

Date Started : 11/6/02
 Date Completed : 11/13/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
0					Hand augered to 5 feet below ground surface (bgs).
5					Clayey SAND with silt, very fine to coarse grained, with few pebbles and occasional gravels. Loose. Brown [7.5YR 4/3]. Dry. Poorly sorted. No odor.
10					Cobbles. Clayey SAND, very fine to coarse grained with trace angular gravels. Loose. Brown [7.5YR 4/4]. Dry. Poorly sorted. No odor.
15		SC/SM			Same as above except slightly lighter color.
20					Cobbles Clayey SAND, very fine to coarse grained with few angular cobbles and gravels. Loose. Dark grayish brown [10YR 4/2]. Dry. No odor.
25					



BORING LOG OF IW1

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Date Started : 11/6/02
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Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
25					<p>Clayey SAND, very fine to coarse grained with trace fine to coarse gravels. Dark Brown [7.5 YR 3/2]. Dry. Poorly sorted. No odor.</p> <p>Same as above except slightly higher clay content. Gravels are granitic composition.</p> <p>Clayey SAND, very fine to coarse grained. Dark Brown [7.5 YR 3/2]. Dry. Poorly sorted. No odor.</p> <p>Trace cobbles.</p> <p>Light coloring (white/grey).</p> <p>Clayey SAND, very fine to coarse grained with trace coarse gravel. Dark gray [7.5 YR 4/2]. Dry. Poorly sorted. No odor. Sample taken due to prevalent white discoloration.</p>
30		SC			<p>Clayey SAND, very fine to coarse with little coarse gravels. Dark Brown [7.5 YR 3/3]. Dry. Very poorly sorted. No odor.</p> <p>Cobble (granitic composition)</p>
35		SC/SM		<p>Grout</p> <p>4" Diameter Sch 40 PVC</p>	<p>Clayey SAND with silt, very fine to medium grained and trace coarse angular sands and gravels. Loose. Dark Brown [7.5 YR 3/3]. Dry. No odor.</p> <p>Same as above except whitish color. Angular gravels and cobbles.</p> <p>Cobbles of highly weathered, micaceous granite. Brown [7.5 YR 4/2]</p>
40					
45					
50					

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BORING LOG OF IW1

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Date Started : 11/6/02
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Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
50					Silty SAND with some cobbles. Loose. Brown [7.5 YR 4/2]. Dry. Very poorly sorted. No odor.

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SM

Grout
4" Diameter
Sch 40 PVC



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 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
75				<p>Grout 4" Diameter Sch 40 PVC</p>	<p>SILTY SAND, very fine to medium grained. Loose Brown [10 YR 4/3]. Dry. Moderately sorted.</p> <p>Same as above except slightly moist.</p> <p>Same as above.</p> <p>Silty SAND, very fine to medium grained. Loose. Dark Brown [7.5 YR 3/3]. Very slight moisture. Moderately sorted. No odor.</p> <p>Silty SAND, fine to coarse grained with trace coarse gravels with fresh fracture surfaces. Loose. Dark Brown [7.5 YR 3/3]. Poorly sorted. Slightly moist. No odor.</p> <p>Same as above except trace mica rich highly weathered cobbles.</p> <p>Silty SAND with trace gravels. Loose. Dark Brown [7.5 YR 3/3]. Slightly moist. Poorly sorted.</p> <p>Clayey SAND, predominantly clayey silt sand with angular granitic clasts. Very fine grained with trace angular gravels. Moderately dense. Dark Brown [7.5 YR 3/3]. Slightly moist. No odor.</p> <p>Silty SAND, very fine to medium grained with trace angular gravels with freshly fractured faces. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.</p> <p>Same as above.</p> <p>Clayey SAND, Very fine to medium. Loose. Brown [7.5 YR 4/3]. Slightly moist. Trace medium sands. No odor.</p>
80		SM			
85					
90					
95		SC			
		SM/SC			
100					



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Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
100		SC/SM			Same as above except high clay content.
		SC			Silty SAND, very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Dry. Moderately to well sorted. No odor.
105		SM			Same as above
		SC			Clayey SAND, very fine to coarse grained with trace coarse gravels. Loose. Dark Brown [7.5 YR 3/3]. Moist. Poorly sorted. No odor.
110					Silty SAND, very fine to medium grained with trace cobbles. Brown [7.5 YR 4/3]. Dry.
					Slightly moist.
115		SM			Silty SAND, very fine to medium with trace angular cobbles. Loose. Dark Brown [7.5 YR 4/3]. Dry. Moderately sorted. No odor.
					Silty SAND, very fine to coarse with trace angular coarse gravels which are granitic and highly weathered. Brown [7.5 YR 4/3]. Dry. Loose. Poorly sorted.
120					Same as above
125					

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 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
125		SC/SM			Silty Clayey SAND, very fine to medium with trace angular gravels. Brown [7.5 YR 4/3]. Very slightly moist. Poorly sorted.
130					Silty SAND, very fine to coarse with trace angular granitic gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. Same as above.
135					Same as above.
140		SM		 Grout 4" Diameter Sch 40 PVC	Silty SAND, very fine to fine with trace highly weathered gravels. Loose. Brown [7.5 YR 4/3]. Dry. Same as above.
145					Silty SAND, very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.
150					Same as above except predominantly very fine to fine grained with trace angular gravels. Fresh fracture surfaces.

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 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
150		SM			
155		SM/SC			<p>Silty Clayey SAND, very fine to medium grained with trace angular gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p> <p>Same as above except slightly finer.</p>
160				<p>Grout</p> <p>4" Diameter Sch 40 PVC</p>	<p>Silty SAND, very fine to medium. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p> <p>SILTY SAND, very fine to medium with occasional granitic cobbles with fresh fracture surfaces. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p>
165		SM			<p>Same as above except no cobbles.</p>
170					<p>Silty SAND, very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Dry. Moderately sorted.</p> <p>Cobble</p>
175					



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 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
175					<p>Silty SAND, very fine to medium grained with abundant angular gravels with fresh fracture surfaces. Loose. Brown [7.5 YR 4/3]. Dry.</p> <p>Boulder at 176 ft bgs.</p> <p>Silty SAND, very fine to coarse with abundant cobbles/gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.</p> <p>Silty SAND, very fine to medium with trace gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.</p> <p>Same as above.</p> <p>Same as above.</p> <p>Silty SAND, very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Dry. Moderately sorted.</p> <p>Silty SAND, very fine to coarse with trace angular gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p>
180					
185					
190					
195					
200					

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Date Started : 11/6/02
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 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
200				<p>Grout</p> <p>Bentonite Chips</p> <p>4" Diameter Sch 40 PVC</p> <p># 2/12 Sand</p> <p>0.02" slot screen 4" diameter Stainless</p>	<p>Same as above.</p> <p>Silty SAND, very fine to medium with trace cobbles and gravels with fresh fracture faces. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p> <p>Same as above.</p> <p>Same as above except granitic boulder.</p> <p>Silty SAND, very fine to medium sands with trace angular gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p> <p>Same as above.</p>
205					
210		SM			
215					
220					
225					



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Date Started : 11/6/02
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 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW1 TOC Elev.: 1215.88 ft amsl	DESCRIPTION
225					<p>Silty SAND, very fine to medium with abundant angular gravels. Brown [7.5 YR 4/3]. Dry. Very poorly sorted.</p> <p>Boulder</p> <p>Silty SAND with abundant angular coarse gravels/cobbles and trace boulders. Brown [7.5 YR 4/3]. Dry. Loose. Very poorly sorted.</p> <p>Slightly moist.</p> <p>Slightly moist.</p> <p>Silty SAND, very fine to medium with trace angular gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p> <p>Moist</p> <p>Silty SAND, very fine to medium with abundant angular gravels. Loose. Brown [7.5 YR 4/3]. Slightly moist. Poorly sorted boulders.</p> <p>Same as above.</p> <p>Silty SAND/GRAVEL. Very fine to coarse with angular cobbles and boulders. Loose. Dark Brown [7.5 YR 3/3]. Wet. Very poorly sorted.</p> <p>Boulder. Moist</p> <p>Boulder. Moist.</p> <p>Same as above with boulders. Slightly moist.</p>
230					
235		SM			
240					
245					
250		SM/GM			



BORING LOG OF IW2

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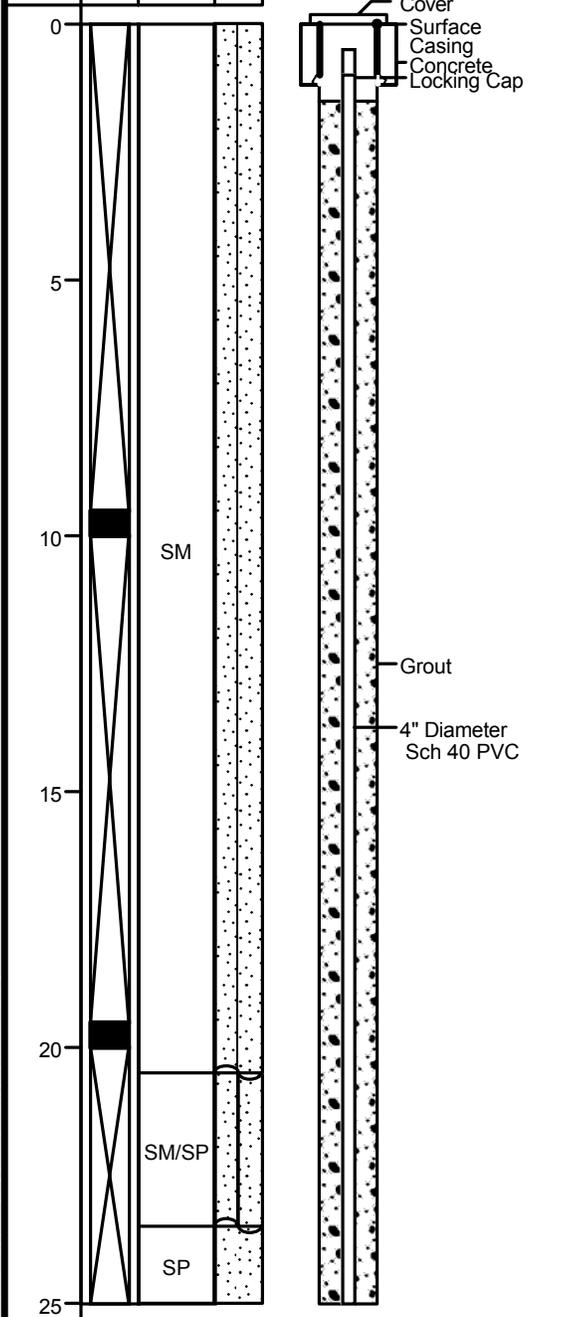
Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC
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Well: IW2
 TOC Elev.: 1235.62 ft amsl

DESCRIPTION



Hand augered to 7 feet below ground surface (bgs).

Silty SAND. Very fine to medium sand with trace coarse sands. Loose. Brown [7.5 YR 4/2]. Dry. Well sorted. No odor.

Same as above except slightly more coarse sands.

Silty SAND with trace clay. Very fine to fine with trace medium sand. Loose. Dark Brown [7.5 YR 3/2]. Slightly moist. Moderately sorted. No staining. No odor.

Same as above except slightly higher clay content.

Silty SAND with little clay. Very fine to medium grained with trace suangular/subrounded cobbles. Loose. Brown [7.5 YR 4/3]. Very slightly moist. Poorly sorted. No staining. No odor.

Same as above except slightly less fines.

6" thick quartz/feldspar rich granitic boulder.

SAND with some silt. Very fine to coarse sand with trace subrounded cobbles (granitic-quartz rich). Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No staining. No odor.



BORING LOG OF IW2

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Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
25					<p>SAND with some silt. Very fine to coarse with occasional subrounded gravels and trace cobbles. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No staining. No odor.</p> <p>Boulder.</p>
30		SP			<p>SAND with trace silt. Very fine to medium with trace gravels. Loose. Dark brown [7.5 YR 3/2]. Moist. Poorly sorted. Very little fines. No staining. No odor.</p> <p>Boulder.</p>
		SM/CL			<p>Silty SAND with clay. Very fine to medium grained. Primarily brown [7.5 YR 4/3] with some pink (feldspar) and white coarse sand. Slightly moist. Poorly sorted. No odor.</p>
35		ML/CL			<p>Silty CLAY. Very fine to fine grained with trace sands. Moderately dense. Brown [7.5 YR 4/3] with mottled gray/pink. Slightly moist. Poorly sorted with trace coarse gravels. No staining. No odor.</p>
		SM/GM			<p>Same as above except brittle clay lens. Slickensides 4-5 cm zone.</p>
40					<p>Silty SAND/Gravels. Very fine to coarse. Loose. Primarily brown [7.5 YR 4/3] with mottled pink/gray gravels. Dry. Poorly sorted. No odor.</p>
					<p>Silty Clayey SAND. Very fine to coarse with weathered pink feldspathic subangular gravels. Loose. Pinkish gray [7.5 YR 6/2]. Dry. Poorly sorted. No odor.</p>
45		SM/SC			<p>Same as above except fine grained and increased clay content.</p>
					<p>Silty Clayey SAND. Very fine to fine grained. Slightly dense. Brown [7.5 YR 4/2]. Dry. Poorly sorted. No odor.</p>
50					<p>Same as above except some brittle clay/silt lenses.</p>

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BORING LOG OF IW2

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Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
50		ML/SM		<p>Grout 4" Diameter Sch 40 PVC</p>	<p>Silty SAND/Sandy SILT. Very fine to coarse grained with trace cobbles of highly weathered mafic, biotite rich granitics. Loose. Brown [7.5 YR 5/2]. Dry. Moderately to poorly sorted. No staining. No odor.</p> <p>Same as above.</p>
55		SM/SP			<p>Silty SAND/Sand SILT with occasional gravels. Very fine to coarse grained. Loose. Light brown [7.5 YR 6/3] with trace pink. Dry. Poorly sorted. No staining. No odor.</p>
60		GP/SP			<p>Gravel/SAND with some silt. Very fine to coarse grained. Gravels are highly weathered granites that are very friable. Loose. Light brown [7.5 YR 6/3]. Dry. Poorly sorted. No staining. No odor.</p>
65		SM/ML			<p>Same as above except slightly smaller gravels.</p> <p>Sandy SILT with occasional coarse sand/gravel. Predominantly very fine to fine with trace coarse gravel. Dense. Brown [7.5 YR 5/2]. Dry. Moderate to poorly sorted. No staining. No odor.</p>
70		ML/SM			<p>Same as above.</p> <p>Sandy SILT with coarse gravels/cobbles of biotite rich, mafic, highly weathered granite. Moderately dense. Brown [7.5 YR 5/2]. Dry. Very poorly sorted. No staining. No odor.</p>
75					<p>Silty SAND with occasional gravels of highly weathered felsic (pink) granite that is biotite rich. Moderately dense. Brown [7.5 YR 5/2]. Dry. Poorly sorted. No staining. No odor.</p>



BORING LOG OF IW2

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RN099455.0005.CA001

Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
75		ML/SM			Same as above.
80		SM			Silty SAND with occasional coarse gravels and cobbles of highly weathered granites. Moderately dense. Brown [7.5 YR 5/2]. Dry. Poorly sorted. No staining. No odor.
					Same as above.
85				Grout 4" Diameter Sch 40 PVC	Same as above except slightly more coarse.
90		SM/GM			Silty SAND/GRAVEL with occasional cobbles. Very fine to coarse grained. Moderately dense. Mottled brown [7.5 YR 5/2] with light pink. Dry. Very poorly sorted. No staining. No odor.
					Same as above.
					Silty SANDY GRAVEL. Very fine to coarse grained with brittle weathered mafic and quartz rich granitic gravels and cobbles. Dense. Brown [7.5 YR 5/2]. Dry. Very poorly sorted. No staining. No odor.
95					Same as above except slightly more gravelly with trace felsic (pink) gravels as well.
100					Same as above with gravels/cobbles of granites [quartz rich, feldspar (pink) rich, and mafic (biotite rich)]. Three main types - all very weathered.

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BORING LOG OF IW2

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JPL

RN099455.0005.CA001

Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
100					Silty SAND/Gravel. Very fine to very coarse grained. Predominantly silt to medium sand size with some angular, highly weathered granites. Dark gray [10 YR 4/1]. Dry. Very poorly sorted. No staining. No odor. Very dense.
105		SM/GM			Same as above except slightly finer particles.
					Same as above.
					Same as above.
110					Silty, Sandy GRAVEL. Very fine to coarse angular gravels of highly weathered granites. Feldspar (pink) and micas are weathered to clay. Granite fragments appear slightly metamorphosed. Slickenside lines present and chloritization of micas. Very dense. Mottled olive gray to light pink in color. Dry. Poorly sorted. No staining. No odor. Possible JPL Thrust Fault at 112'.
		GM		Grout 4" Diameter Sch 40 PVC	Same as above.
115		SM			Silty SAND. Predominantly very fine to medium grained with trace subangular gravels. Moderately dense. Light brown [7.5 YR 6/3]. Dry. Poorly sorted. No staining. No odor.
					Silty SAND/Gravel. Very fine to very coarse grained with very brittle angular gravels of weathered granite. Dense. Gray [7.5 YR 5/1]. Dry. Poorly sorted. No staining. No odor.
120		SM/GM			Same as above.
					Silty SAND with occasional gravels. Very fine to coarse grained with brittle, subangular gravels. Dense. Mottled light gray-brown-pink. Dry. Poorly sorted. No staining. No odor.
125		SM			

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BORING LOG OF IW2

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JPL

RN099455.0005.CA001

Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
125					
130		SM			Same as above except slightly finer sediments.
135					Same as above.
140				Grout 4" Diameter Sch 40 PVC	Silty SAND with gravels of weathered granite. Very fine to coarse grained. Dense. Light gray [7.5 YR 7/1]. Dry. Poorly sorted. No staining. No odor.
145		SM/GM			Same as above except slightly coarser sediments.
150					Silty SAND/Gravel. Very fine to cobble size. Cobbles and coarse gravels of highly weathered light pink/light gray granitics. Brittle. Dense. Mottled light pink and light gray. Dry. Very poorly sorted.
					Silty SAND/Gravel. Very fine to medium grained with coarse gravels. Dense. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No staining. No odor.
					Same as above except slightly finer sediments.

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BORING LOG OF IW2

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Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
150		SM		<p>Grout</p> <p>4" Diameter Sch 40 PVC</p>	<p>Silty SAND with subrounded granitic gravels and trace clay. Very fine to medium grained with trace coarse clasts. Black/white granitic coarse gravels/cobbles. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No staining. No odor.</p>
155					<p>Silty SAND/Gravel. Gravels are subangular with very fine to coarse grained sands. Brown [7.5 YR 4/3]. Dry. Poorly sorted black/white gravels. No staining. No odor.</p>
160		SM/GM			<p>Silty SAND/Gravel with trace clay. Moderately dense. Subangular to subrounded sand and gravel particles. Brown [7.5 YR 4/3]. Slightly moist. Poorly sorted. No staining. No odor.</p>
165					<p>Same as above. Sample taken here due to increased moisture content and decreased fines (more sand/gravels).</p>
170		SM/SP			<p>Boulder - highly weathered, appears to be a granodiorite.</p>
		SM			<p>SAND with some silt. Very fine to medium with trace gravels. Moderately dense. Dark brown [7.5 YR 3/2]. Moist. Poorly sorted. No staining. No odor.</p>
		SM			<p>Same as above except slightly more coarse and less moisture.</p>
175		SM/GM			<p>Silty SAND/Gravel. Moderately dense. Trace silt, predominantly very fine to coarse sand with occasional gravels of highly weathered black/white granite. Brown [7.5 YR 5/2]. Moist. Poorly sorted. No staining. No odor.</p>



BORING LOG OF IW2

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RN099455.0005.CA001

Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
175		SM/GM			Same as above.
180					Silty SAND with gravel. Very fine to medium grained with trace coarse. Moderately dense. Black/white subrounded gravels. Light brown [7.5 YR 6/3]. Dry. Poorly sorted. No staining. No odor.
185					Very slightly moist. Same as above.
190		SM			Very slightly moist. Same as above.
195					Same as above.
200					Silty SAND with occasional gravel. Very fine to medium grained with trace fine gravels and quartz rich subrounded gravels. Moderately dense. Brown [7.5 YR 4/3]. Very slightly moist. Poorly sorted. No staining. No odor.



BORING LOG OF IW2

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RN099455.0005.CA001

Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
200					<p>Silty SAND with trace of highly weathered gravels. Very fine to coarse sands with medium gravels. Moderately dense. Brown [7.5 YR, 5/2]. Dry. Poorly sorted. No staining. No odor.</p> <p>Same as above.</p> <p>Same as above.</p> <p>Same as above except trace cobbles.</p> <p>Silty SAND. Predominantly very fine to medium grained. Moderately dense. Brown [7.5 YR 5/2]. Dry. Poorly sorted. No staining. No odor.</p> <p>Silty SAND. Very fine to coarse sand with trace gravels. Subangular to angular gravels. Moderately dense. Brown [7.5 YR 5/2]. Dry. Poorly sorted. No staining. No odor.</p>
205					
210					
215					
220					
225					



BORING LOG OF IW2

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RN099455.0005.CA001

Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
225					
		SM		<p>Grout</p> <p>Bentonite Chips</p> <p>4" Diameter Sch 40 PVC</p>	<p>Same as above.</p> <p>Same as above.</p> <p>Same as above.</p> <p>Same as above except slightly moist.</p>
230					
		SM			<p>Same as above.</p> <p>Same as above except slightly moist.</p>
235					
				<p>GW @ 240.4'</p>	<p>Same as above.</p> <p>Silty SAND with trace clay. Very fine to medium grained with trace coarse subangular to subrounded sand/gravels. Moderately dense. Brown [7.5 YR 4/3]. Moist. Moderately to poorly sorted. No staining. No odor.</p>
240					
		SM/ML		<p># 2/12 Sand</p> <p>4" 0.02" slot stainless steel screen</p>	<p>Same as above.</p>
245					
250					

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BORING LOG OF IW2

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Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
250		SM/ML			Boulder.
255					Silty Gravel/SAND. Alternating layers of clay/silt rich layers with coarse sands/cobbles with sandy gravelly layers. Dense to moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor.
260					Same as above except slightly more clay.
265		SM/GM			Same as above.
270					Silty SAND/Gravels with trace cobbles. Subangular granitic gravels. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor.
275					Same as above.

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BORING LOG OF IW2

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Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
275		SM/ML			Silty/Clayey SAND with gravels. Very fine to coarse sand. Subrounded gravels. Dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor.
280		ML/SM			Sandy, Gravelly SILT with trace clay. Very fine grained to coarse gravel. Dense. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No staining. No odor. Same as above. Little moisture.
285				4" 0.02" slot stainless steel screen # 2/12 Sand	Silty SAND. Very fine to medium grained. Moderately dense. Brown [7.5 YR 4/3]. Wet. Moderately sorted. No staining. No odor.
290		SM			Same as above except occasional gravel.
295		SM/GM			Boulder. Silty SAND with angular gravels. Dense. Light brown [7.5 YR 6/3]. Moist. Poorly sorted. No staining. No odor.
300					

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BORING LOG OF IW2

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Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
300					Boulder. Boulder. Silty SAND with occassional gravels of biotite rich granitic rock. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor.
305		SM		# 2/12 Sand	Same as above. Silty SAND with trace cobbles. Very fine to coarse sand with trace subrounded cobbles. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor.
310		ML/SM			SILT with trace sand and gravels. Trace clay. Very fine to medium grained. Moderately dense. Brown [7.5 YR 4/3]. Wet. Moderately sorted. No staining. No odor. Boulder - weathered quartz rich granite.
315				Bentonite Chips	Silty SAND with trace cobbles. Very fine silt with trace clay and fine to medium sand. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor. Weathered biotite rich granodiorite with schistose texture.
320		SM			Silty SAND with trace subrounded cobbles. Very fine silt with fine to medium sand. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor. Silty SAND with trace subrounded gravels. Very fine to coarse sand with trace clay. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor.
325				# 3 Sand	

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BORING LOG OF IW2

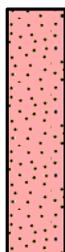
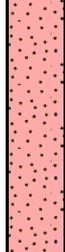
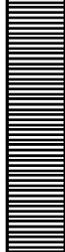
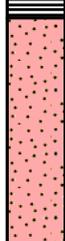
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Date Started : 1/6/03
 Date Completed : 1/31/03
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
325	X				Same as above.
330		SM		# 3 Sand	Same as above.
335				Bentonite Chips	Silty SAND. Very fine to medium sand with trace subrounded gravels and trace clay. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
340		SM/SC		Bentonite Chips	Same as above except more clay.
345		SM		# 3 Sand	Silty, Clayey SAND with trace subrounded gravels. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor.
350		SM		# 3 Sand	Silty SAND. Very fine to coarse sand with trace subangular and subrounded granitic gravels. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No staining. No odor.



BORING LOG OF IW2

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Date Started	: 1/6/03	Sample Device	: Core Barrel
Date Completed	: 1/31/03	Drill Rig	: Sonic Rig
Logged By	: Kristen Stevens	Drillers	: Ron/Dan/Phelps
Checked By	: Scott Edwards, R.G. 7317	Diameter	: 9 inches
Drilling Company	: Boart Longyear		

Depth in Feet	Samples	USCS	GRAPHIC	Well: IW2 TOC Elev.: 1235.62 ft amsl	DESCRIPTION
350		SM		# 3 Sand	Same as above.
355					
360					
365					
370					
375					

Total Depth = 351 feet bgs.



BORING LOG OF IRZMW1

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RN099455.0005.CA001

Date Started : 12/15/02
 Date Completed : 12/21/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW1 TOC Elev.: 1216.50 ft amsl	DESCRIPTION
50					
55		SM/CL			
60	[Sample]				Same as below except more granular gravels.
65				Grout 4" Diameter Sch 40 PVC	Silty SAND with trace amount of gravels. Very fine to medium grained with trace coarse sands. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
70		SM			
75					



BORING LOG OF IRZMW1

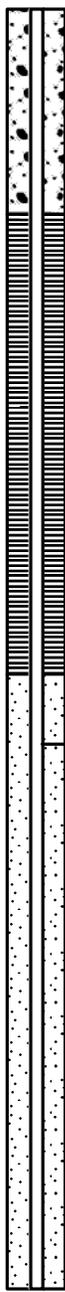
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RN099455.0005.CA001

Date Started : 12/15/02
 Date Completed : 12/21/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW1 TOC Elev.: 1216.50 ft amsl	DESCRIPTION
200				 <p>Grout</p>	<p>Silty SAND. Very fine with trace medium sand and angular granite gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.</p> <p>Same as above.</p> <p>Boulder.</p> <p>Silty SAND. Very fine to medium with occasional angular gravels. Loose. Brown [7.5 YR 4/3]. Dry Poorly Sorted. No odor.</p> <p>Same as above except more granular gravels.</p> <p>Bentonite Chips</p> <p>Silty SAND. Very fine to medium with trace coarse sands. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.</p> <p>Same as above except trace amount of cobbles.</p> <p>4" Diameter Sch 40 PVC</p> <p>Silty SAND. Very fine to fine grained with trace medium and coarse sand. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.</p> <p># 2/12 Sand</p> <p>Same as above except slightly more angular cobbles.</p> <p>Boulder.</p> <p>Silty SAND. Very fine to medium grained with abundant subrounded gravels. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.</p>
205					
210		SM			
215					
220					
225					

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BORING LOG OF IRZMW1

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Date Started : 12/15/02
 Date Completed : 12/21/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW1 TOC Elev.: 1216.50 ft amsl	DESCRIPTION
225					Same as above.
230		SM			Silty SAND. Very fine to medium with trace cobbles. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
				GW @ 233'	Silty Clayey SAND. Very fine to coarse sands with abundant angular to subangular gravels. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
				# 2/12 Sand	Cobbles. Silty Clayey Sand. Very fine to coarse with abundant granular gravels. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
235		SM/SC			Boulder from 238 feet to 240 feet
240				4"-0.02 slot stainless steel screen	Silty Clayey SAND. Very fine to coarse grained with occasional granitic subangular to angular gravels. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor. Clayey SAND. Very fine to coarse grained with occasional gravels. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
245		SM/GC			Same as above except increased gravel content.
					Clayey SAND. Very fine to coarse grained with trace fine gravels. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
250		SC			

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BORING LOG OF IRZMW1

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Date Started : 12/15/02
 Date Completed : 12/21/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW1 TOC Elev.: 1216.50 ft amsl	DESCRIPTION
250		SC		<p># 2/12 Sand</p> <p>4"-0.02 slot stainless steel screen</p>	Same as above.
					Boulder. Boulder.
		SC/SM			Silty Clayey SAND with occasional gravels and cobble. Very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
255		SC/GC			Clayey SAND with abundant gravel. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
					Clayey SAND with very fine to medium grains with trace rounded cobbles and occasional gravels. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
					Same as above except increased clay content.
260					Same as above.
					Same as above
265		SC			Clayey SAND with angular gravel fragments with fresh fractured surfaces. Very fine to coarse grained. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
					Clayey SAND. Very fine to fine with trace angular granitic gravels. Loose to moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
270				Clayey SAND. Very fine to medium with occasional coarse sand. Loose to moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.	
275					



BORING LOG OF IRZMW1

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RN099455.0005.CA001

Date Started : 12/15/02
 Date Completed : 12/21/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW1 TOC Elev.: 1216.50 ft amsl	DESCRIPTION
275		SC		<p># 2/12 Sand 4"-0.02 slot stainless steel screen Cap</p>	<p>Same as above.</p> <p>Same as above except increase clay content and density. Boulder. Boulder. Clayey SAND,. Very fine to medium grained with a high clay content. Loose. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.</p>
280	Total Depth = 280 feet bgs.				
300					



BORING LOG OF IRZMW2

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JPL

RN099455.0005.CA001

Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
0					Hand Augered to 5 feet below ground surface (bgs).
5					Silty SAND. Very fine to medium grained with trace coarse sands. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
10		SM			Same as above except trace cobbles.
15		SM			Silty SAND with trace clay. Very fine to fine with trace subangular to angular coarse sands & gravels. Brown [7.5 YR 4/2]. Dry. Poorly sorted. No odor.
20		SM/SC			Same as above except slightly large concentration of gravels.
25		SC/SM			Silty Clayey SAND with trace coarse sands/gravels. Very fine to medium grained. Loose. Dark Brown [7.5 YR 3/2]. Slightly moist. Poorly sorted. No odor. Same as above except highly weathered granitic cobbles.



BORING LOG OF IRZMW2

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Date Started	: 11/14/02	Sample Device	: Core Barrel
Date Completed	: 11/20/02	Drill Rig	: Sonic Rig
Logged By	: Kristen Stevens	Drillers	: Ron/Dan/Phelps
Checked By	: Scott Edwards, R.G. 7317	Diameter	: 9 inches
Drilling Company	: Boart Longyear		

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
25		SC/SM		<p>Grout 4" Diameter Sch 40 PVC</p>	Silty Clayey SAND. Very fine to medium grained. Loose. Dark Brown [7.5 YR 3/2]. Moist. Poorly sorted. No odor.
		SM			
		SC/SM			Clayey SAND. Very fine to medium grained. Dark Brown [7.5 YR 3/2]. Moist. Poorly sorted. No odor.
30		SM			Silty SAND. Very fine to medium grained. Brown [7.5 YR 4/2]. Dry. Poorly sorted. No odor.
		SC/SM			Silty Clayey SAND. Very fine to medium grained. Dark brown [7.5 YR 3/2]. Slightly moist. Moderately sorted. No odor.
35		SC/SM			Same as above
		SC/SM			Same as above
40		SM			Same as above except trace cobbles.
		SM			Silty SAND. Very fine to fine grained. Loose. Brown [7.5 YR 4/2]. Dry. Moderately to well sorted. No odor.
		SC/SM			Clayey/Silty SAND with trace cobbles. Very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
45		SM		Silty SAND. Very fine to medium grained with trace coarse sands. Loose. Dark Brown [7.5 YR 3/2]. Slightly moist. Poorly sorted. No odor.	
		SC		Clayey SAND. Very fine to fine grained. Moderately dense. Dark Brown [7.5 YR 3/2]. Slightly moist to dry. Poorly sorted with trace cobbles. No odor.	
		SM		Silty SAND with trace angular gravels. Very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.	
50					

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BORING LOG OF IRZMW2

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Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
50		SM			
		SC/SM			Silty Clayey SAND with trace angular gravels. Very fine to medium grained. Moderately dense to loose. Poorly sorted. No odor.
55					Silty SAND. Very fine to medium grained with trace coarse angular gravels. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
					Same as above
60					Same as above except trace amount clay.
		SM			Silty SAND. Very fine to coarse with trace angular cobbles and gravels. Fresh fracture surfaces on cobbles. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
					Boulder
65					Silty SAND. Very fine to medium grained with occasional coarse sands to fine gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
70					Same as above.
					Silty SAND. Very fine to coarse grained with trace angular gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
75					Same as above except more angular gravels.

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Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
75				<p>Grout 4" Diameter Sch 40 PVC</p>	<p>Silty SAND. Very fine to coarse grained with occasional highly weathered angular gravels and cobbles. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p> <p>Same as above.</p>
80		SM			<p>Silty Clayey SAND. Very fine to medium grained with trace gravels. Moderately dense. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.</p>
		SM/SC			<p>Silty SAND. Very fine to fine grained with trace medium. Brown [7.5 YR 4/3]. Dry. Moderately sorted. No odor.</p>
85		SM			<p>Silty SAND. Very fine to fine grained. Loose. Brown [7.5 YR 4/3]. Dry. Well Sorted. No odor.</p>
		SM			<p>Same as above</p>
90		SM/SC			<p>Same as above except trace clay.</p>
		SC			<p>Clayey SAND with trace angular gravels. Very fine to medium grained. Moderately dense. Dark Brown [7.5 YR 3/2]. Dry. Poorly sorted. No odor.</p>
		SC/SM			<p>Same as above except less clay.</p>
95		SM			<p>Silty SAND with trace angular gravels with fresh fracture surfaces. Very fine to fine grained. Loose. Brown [7.5 YR 4/3]. Dry. No odor.</p>
100		SM			<p>Same as above.</p>



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Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
100		SM			Same as above.
		SC		Grout	Clayey SAND. Very fine to medium grained with trace coarse gravel / cobble. Moderate density. Dark Brown [7.5 YR 3/2]. Dry. No odor.
105					Same as above.
				Bentonite Chips	Silty SAND. Very fine to medium grained with trace coarse sands. Brown [7.5 YR 4/3]. Dry. Loose. No odor.
110					Same as above except with trace angular gravels.
				4" Diameter Sch 40 PVC	Same as above
115		SM			Silty SAND. Very fine to coarse grained with abundant coarse gravels. Loose. Brown [7.5 YR 4/3]. Dry. No odor.
					Silty SAND. Very fine to coarse grained with trace gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
120				#2/12 Sand	Same as above
					Same as above
					Silty SAND. Very fine to coarse grained with angular cobbles and gravels of granitic composition. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
125					Silty SAND. Very fine to coarse grained with trace gravels. Loose. Brown [7.5 YR 4/3]. Dry. No odor.

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Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
125					
130					Same as above except fractured cobbles with fresh surfaces. Fractured cobbles/gravels are highly weathered and of very quartz-rich granitic composition.
135					Same as above
140		SM		4" Diameter Sch 40 PVC #2/12 Sand	Silty SAND. Very fine to coarse grained with angular gravels and cobbles. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
145					Same as above
150					Silty SAND. Very fine to medium grained with occasional gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
150					Same as above except trace cobbles.
150					Silty SAND. Very fine to coarse grained with trace gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
150					Same as above

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Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
150					Same as above.
155					Silty SAND. Very fine to coarse grained with trace angular cobbles of granitic composition. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
					Same as above
160					Same as above except trace fractured quartz rich boulder.
		SM		4" Diameter Sch 40 PVC #2/12 Sand	Silty SAND with trace clay. Very fine to coarse grained with occasional angular coarse gravels and cobbles. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
165					Same as above except no cobbles.
					Silty SAND with occasional angular gravels. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
170					Silty SAND with trace clay. Very fine to medium grained. Loose. Dark Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
175					Same as above



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Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
175					<p>Silty SAND. Very fine to coarse grained with cobbles and boulder. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted.</p> <p>Boulder.</p> <p>Same as above.</p> <p>Silty SAND. Very fine to coarse with abundant angular gravels and cobbles with fresh fracture surfaces. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.</p> <p>Same as above.</p> <p>Same as above</p> <p>Boulder.</p> <p>Boulder.</p> <p>Same as above.</p> <p>Silty SAND. Very fine to fine grained with abundant angular coarse gravels and trace quartz and mica rich cobbles. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.</p> <p>Same as above</p> <p>Same as above except more angular coarse gravels and cobbles.</p> <p>Same as above</p>
200					

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Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
200					Silty SAND. Fine to coarse grained with occasional subangular gravels. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
205					Same as above.
					Same as above.
210					Same as above except trace cobbles.
				4" Diameter Sch 40 PVC	Same as above.
				#2/12 Sand	Silty SAND. Very fine to coarse grained with abundant angular gravels and occasional cobbles. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
215					Same as above.
220					Silty SAND. Very fine to coarse grained with gravels and cobbles with fresh fracture surfaces. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor. Boulder.
				0.02" slot screen 4" diameter Stainless	Silty SAND. Very fine to coarse grained with occasional gravels. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
225					Same as above.

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Date Started : 11/14/02
 Date Completed : 11/20/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW2 TOC Elev.: 1215.52 ft amsl	DESCRIPTION
225					Same as above with granitic cobbles.
230		SM			Same as above.
		SM/SC			Silty SAND. Very fine to coarse grained with occasional gravels, cobbles and trace clay. Loose to moderately dense. Dark Brown [7.5 YR 3/3]. Moist. Very poorly sorted. No odor.
				GW @ 233.5'	
235		SM			Same as above except no clay.
				0.02" slot screen 4" diameter Stainless	
				#2/12 Sand	
240		SM/GM			Broken boulder of highly weathered granite.
					Silty SAND. Very fine to coarse grained with abundant gravels and angular cobbles. Loose. Brown [7.5 YR 4/3]. Moist. Very poorly sorted. No odor. Boulder.
245		SM			Same as above except no cobbles.
					Silty SAND with angular gravels, cobbles and boulders. Very fine to coarse grained. Loose. Brown [7.5 YR 4/3]. Moist. Very poorly sorted. No odor. Boulder.
250					Boulder.....

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BORING LOG OF IRZMW3

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Date Started : 11/21/02
 Date Completed : 12/15/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW3 TOC Elev.: 1216.25 ft amsl	DESCRIPTION
50		ML/CL			Boulder.
55					
60					Silty SAND. Very fine to medium grained with occasional coarse sand and gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
65		SM		Grout 4" Diameter Sch 40 PVC	Same as above except cobbles of highly weathered granite.
70					Boulder.
75					



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Date Started : 11/21/02
 Date Completed : 12/15/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW3 TOC Elev.: 1216.25 ft amsl	DESCRIPTION
200					Silty SAND. Very fine to coarse grained. Brown [7.5 YR, 4/3]. Dry. Poorly sorted. No odor.
205					Same as above except occasional gravels.
				Bentonite Slurry grout	Same as above except gravels and cobbles.
210		SM			Silty SAND, very fine to coarse with occasional cobbles of highly weathered granite. Loose. Brown [7.5 YR 4/3]. Dry. Very poorly sorted. No odor.
				4" Diameter Sch 40 PVC	Same as above Granite boulder
215					Granite boulder Granite boulder Granite boulder
				# 2/12 Sand	Silty SAND. Very fine to very coarse with gravels and small cobbles. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
220					Same as above except slightly moist.
					Silty SAND, with boulders and highly weathered granitic cobbles. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
225					Same as above except more cobbles/boulders.

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Date Started : 11/21/02
 Date Completed : 12/15/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW3 TOC Elev.: 1216.25 ft amsl	DESCRIPTION
225					Silty SAND. Very fine to medium with angular gravels. Loose. Brown [7.5 YR 4/3]. Dry. Poorly sorted. No odor.
230		SM			Silty SAND. Very fine to medium with occasional coarse sands, gravels, and trace cobbles. Loose. Brown [7.5 YR 4/3]. Slightly moist. Poorly sorted. No odor.
				GW @ 233'	Silty SAND. Very fine to coarse with occasional fine gravels. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. Slight clay. No odor.
				0.02" slot screen 4" diameter Stainless Steel	Cobbles
235		SM/SC		# 2/12 Sand	Clayey/Silty SAND. Very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
		SC			CLAYEY SAND, very fine to medium. Loose to slightly dense. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
240		SC/GC			Clayey SAND/ GRAVEL. Very fine to coarse grained. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
		SC			Same as above except trace cobbles.
245		GC/SC			Clayey SAND. Very fine to medium grained. Dense. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
		SC/GC			Boulder
					Clayey GRAVEL/SAND. Dense. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
250					Clayey SAND/GRAVEL with subangular to angular granite gravels. Moderately dense. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.

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Date Started : 11/21/02
 Date Completed : 12/15/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW3 TOC Elev.: 1216.25 ft amsl	DESCRIPTION
250					Same as above
255		SC/GC			Same as above
260		SC		0.02" slot screen 4" diameter Stainless Steel	Clayey SAND. Very fine to fine with occasional medium sand. Dense. Brown [7.5 YR 4/3]. Moist. Moderately sorted. No odor.
265		SC/GC		# 2/12 Sand	Same as above except trace amount of cobbles.
270		SC			Clayey SAND/GRAVEL. Very fine to coarse grained with angular coarse sands and gravel. Loose to moderately dense. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.
275					Same as above. Same as above except subrounded gravels. Clayey SAND. Very fine to coarse grained with angular gravels. Loose. Brown [7.5 YR 4/3]. Slightly moist. Poorly sorted. No odor. Clayey SAND, with occasional gravels. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor.

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Date Started : 11/21/02
 Date Completed : 12/15/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW3 TOC Elev.: 1216.25 ft amsl	DESCRIPTION
275		SC			Clayey SAND. Very fine to medium grained. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor. Same as above.
280		SC/GC			Clayey SAND/GRAVEL. Very fine to coarse. Moderately dense. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor. Trace cobbles. Boulder.
285		SM/SC			Clayey SAND. Very fine to cobble size. Highly weathered granite cobble and subangular to angular gravels. Loose. Brown [7.5 YR 4/3]. Slightly moist. Granitic boulder to 288 ft bgs.
290		SC/SM			Silty clayey SAND. Fine to very fine grained with subangular to subrounded gravels. Loose. Brown [7.5 YR 4/3]. Moist. Poorly sorted. No odor. Same as above.
295		SC/CL			No recovery from 292 feet bgs to 298 feet bgs. Fractured rock observed in hopper. Drilling was very difficult.
300					Clayey SAND. Fine to very fine with trace cobbles and gravels. Loose. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.

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Date Started : 11/21/02
 Date Completed : 12/15/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW3 TOC Elev.: 1216.25 ft amsl	DESCRIPTION
300					
				Bentonite Chips	Clayey SAND. Very fine to medium with trace gravels. Dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor. Saturated. Easy drilling.
					Same as above.
					Same as above.
	SC/CL			# 3 Sand	Sandy CLAY. Very fine to medium grained. Moderatly dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor. Trace of subrounded gravels.
					Same as above.
				Boulder.	Boulder.
					Same as above.
	SC			Bentonite Chips	Sandy CLAY/Clayey SAND. Very fine to medium grained. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
					Clayey SAND. Very fine to coarse with trace rounded gravels. Dense. Brown [7.5 YR 4/3]. Wet. Very poorly sorted. No odor.
					Same as above except no gravels.

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Date Started : 11/21/02
 Date Completed : 12/15/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW3 TOC Elev.: 1216.25 ft amsl	DESCRIPTION
325					Same as above.
				Bentonite Chips	
					Same as above.
		SC			Clayey SAND. Very fine to medium. Moderately dense. Brown [7.5 YR 4/3]. Wet. Moderately to poorly sorted. No odor. Less clay than previous.
					Same as above except trace coarse gravels/fine cobbles.
					Clayey SAND. Very fine to coarse grained. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
				# 3 Sand	Sandy CLAY/Clayey SAND. Very fine to fine with trace medium grained. Dense. Brown [7.5 YR 4/3]. Wet. Moderately sorted. No odor. Less clay.
		SC/CL			Same as above.
					Clayey SAND. Very fine to coarse grained. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
					Clayey SAND. Fine to very fine grained. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
		SC			Same as above except trace subrounded gravels.
					Same as above.
					Clayey SAND/Sandy CLAY. Fine to very fine grained with trace medium sand, cobbles, and occasional subrounded gravels. Dense. Brown [7.5 YR 4/3] Wet. Poorly sorted. No odor.
		SC/CL		Bentonite Chips	



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Date Started : 11/21/02
 Date Completed : 12/15/02
 Logged By : Kristen Stevens
 Checked By : Scott Edwards, R.G. 7317
 Drilling Company : Boart Longyear

Sample Device : Core Barrel
 Drill Rig : Sonic Rig
 Drillers : Ron/Dan/Phelps
 Diameter : 9 inches

Depth in Feet	Samples	USCS	GRAPHIC	Well: IRZMW3 TOC Elev.: 1216.25 ft amsl	DESCRIPTION
350		SC/CL			Clayey SAND/Sandy CLAY, very fine to fine with trace medium sands and coarse gravels. Dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor. Trace gneissic cobbles.
		SC/GC			Same as above except increased subrounded gravels.
355					Bentonite Chips
		GC/SC			# 3 Sand
360					Caved in native formation material
365		SC			Same as above except less gravels and generally finer sediments.
		SC/CL			Sandy CLAY/Clayey SAND. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
370		CL			CLAY with trace sand and trace gravels. Moderately dense. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor.
		SC			Cobble
375					CLAYEY SAND. Very fine to medium with trace coarse sands and fine gravels. Loose. Brown [7.5 YR 4/3]. Wet. Poorly sorted. No odor. Pink granite subrounded coarse sands/fine gravels.

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Total Depth = 375 feet bgs.

Appendix B

Survey Data

JPL, Pasadena

Project: 299603

Tue Mar 04 09:45:13 2003

Point statistics:

Starting point number: 1

Current point number: 1

('L' indicates locked point)

Current Coordinate Listing (All)

Point	Northing	Easting	Elev Casing / Rim	Description
100	1896100.8559	6509980.4146	1217.24 /	CPTPK
101	1896161.4540	6510085.7750	1233.67 /	FNDL\T LS3090
102	1896170.4632	6510001.6484	1235.36 /	CPTPK
103	1896041.5579	6509962.3226	1216.45 / 1216.65	SV-27
104	1896078.9487	6510004.0951	1215.52 / 1216.00	IRZMW-2
105	1896077.9278	6509983.8455	1216.25 / 1216.59	IRZ-MW3
106	1896093.9802	6509983.0261	1216.50 / 1216.95	IRZ\MW-1
107	1896095.0052	6510002.9556	1215.88 / 1216.25	IW-1
108	1896062.9366	6510005.6404	1215.39 / 1215.94	MW-7
109	1896207.0777	6510037.4221	1235.62 / 1235.97	IW-2
110	1896199.5240	6510071.2559	1234.66 / 1235.30	SVW-10
111	1896175.4641	6510101.8851	1233.08 / 1233.19	SV-?

NOTE: Coordinates are California Coordinate System 83, Zone 5, based upon GPS Observation and post-processed to CORS Stations JPLM & CIT1.

Elevations are based on L.A. County Benchmark Y 12255 (La Canada Quad)
Datum: NAVD 88 (1995 Adjustment) Elevation: 113.623 Feet.


Joseph Padilla, PLS 7557
Expires: 12/31/05



Appendix C

Non-Hazardous Waste Manifests

Profile 222 948

NO. RECEIVED 14460 JAN 16 2003

NON-HAZARDOUS WASTE DATA FORM

GENERATING SITE Environmental Affairs Office (EAF)

NAME JET PROPULSION LABORATORY JET PROPULSION LABORATORY

ADDRESS 4800 OAK GROVE DRIVE - MS 171-225 4800 OAK GROVE DRIVE

CITY, STATE, ZIP PASADENA, CA 91109 PASADENA, CA 91109

PHONE NO. 818 354-0635 SITE CONTACT _____ PROFILE NO. _____

CONTAINERS: No. 1 GALLONS 2750 Gallons WEIGHT _____

TYPE: TANK TRUCK DUMP TRUCK DRUMS CARTONS OTHER _____

WASTE DESCRIPTION NON-HAZARDOUS WATER GENERATING PROCESS PURGED GROUNDWATER

COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%
1. <u>WATER</u>		<u>99-100%</u>	4. _____		
2. <u>TRACE ORGANICS</u>		<u>< 0.001%</u>	5. _____		
3. _____			6. <u>BESI #58130</u>		

PROPERTIES pH 7-10 SOLID LIQUID SLUDGE SLURRY OTHER _____

HANDLING INSTRUCTIONS: WEAR APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS

TYPED OR PRINTED FULL NAME & SIGNATURE Mark Araki DATE 1/3/03

NAME NIETO AND SONS TRUCKING, INC. EPA I.D. NO. CAT080016116

ADDRESS 1281 BREA CANYON ROAD SERVICE ORDER NO. _____

CITY, STATE, ZIP BREA, CALIFORNIA 92821 PICK UP DATE 1-3-03

PHONE NO. (714) 990-6855

TRUCK UNIT I.D. NO. 222 TYPED OR PRINTED FULL NAME & SIGNATURE Jeff Wysock DATE 1/3/03

NAME DeMenno Kerdoon EPA I.D. NO. CAT080013352

ADDRESS 2000 N. Alameda Street DISPOSAL METHOD LANDFILL RECYCLER

CITY, STATE, ZIP Compton, CA 90222

PHONE NO. 310-537-7100

TYPED OR PRINTED FULL NAME & SIGNATURE SOPHAL P. OVAY DATE 1/3/03

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/Q		RTCD	HWDF	NONE

DISCREPANCY

RECEIVED No. 0893 P. 3
JAN 14 2003 1698
Environmental Affairs Office-IPL

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME Jet Propulsion Laboratory
ADDRESS 4800 Oak Grove Drive
CITY, STATE, ZIP Pasadena, CA 91109 PHONE NO. 818, 354-0635

CONTAINERS: NO. 1 VOLUME/CY 15/24 WEIGHT/TONS _____

TYPE: TANK TRUCK DUMP TRUCK DRUMS OTHER Roll Off Bin

WASTE DESCRIPTION		GENERATING PROCESS	
COMPONENTS OF WASTE	PPM%	COMPONENTS OF WASTE	PPM%
1. <u>SOIL</u>	<u>99-100%</u>	3. <u>DRILL CUTTINGS</u>	<u><1%</u>
2. <u>VOC's</u>	<u><1%</u>	4. _____	_____

SITE ADDRESS _____

PROPERTIES: pH 7-10 SOLID LIQUID OTHER _____

HANDLING INSTRUCTIONS: Wear appropriate protective clothing.

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS
TYPED OR PRINTED FULL NAME & SIGNATURE Mark Araki DATE 01/03/03

TRANSPORTER

NAME Art's Disposal Service
ADDRESS 127 Van Norman Road
CITY, STATE, ZIP Montebello, CA 90640 PICK-UP DATE 01/03/03
PHONE NO. 325, 724-3918
TRUCK UNIT I.D. NO. _____
TYPED OR PRINTED FULL NAME & SIGNATURE MIKE SHALBIN DATE 01/03/03

RECEIVING FACILITIES

NAME WASTE MANAGEMENT-McKITTRICK
ADDRESS 56533 HIGHWAY 58 WEST PROFILE NO. 103-004-IX
CITY, STATE, ZIP McKITTRICK, CA 93251
PHONE NO. 661 762-7366
TYPED OR PRINTED FULL NAME & SIGNATURE _____ DATE _____

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME Jet Propulsion Laboratory

ADDRESS 4800 Oak Grove Drive

CITY, STATE, ZIP Pasadena, CA 91109 PHONE NO. (818) 354-0635

CONTAINERS: NO. 1 VOLUME/CY 25/cy WEIGHT/TONS _____

TYPE: TANK TRUCK DUMP TRUCK DRUMS OTHER Roll OFF

WASTE DESCRIPTION		GENERATING PROCESS	
COMPONENTS OF WASTE	PPM%	COMPONENTS OF WASTE	PPM%
1. <u>SOIL</u>	<u>99-100%</u>	3. <u>METALS</u>	<u><.1%</u>
2. <u>VOC's</u>	<u><.1%</u>	4. _____	_____

WASTE DESCRIPTION SOIL GENERATING PROCESS Drill Cuttings

SITE ADDRESS _____

PROPERTIES: pH 10 SOLID LIQUID OTHER _____

HANDLING INSTRUCTIONS: Wear Appropriate Protective Clothing

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS

Mark Araki 4/7/03
 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER

NAME ART'S Disposal Service

ADDRESS 127 Van Noyman Road

CITY, STATE, ZIP Montebello, CA 90640 PICK-UP DATE _____

PHONE NO. 323-724-3918

TRUCK UNIT I.D. NO. 5V54313 Gustavo Sanchez 11-07-03
 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

RECEIVING FACILITIES

NAME WASTE MANAGEMENT-McKITTRICK

ADDRESS 56533 HIGHWAY 58 WEST PROFILE NO. 103-004 IY

CITY, STATE, ZIP McKITTRICK, CA 93251

PHONE NO. 661 762-7366

 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME Jet Propulsion Laboratory

ADDRESS 4800 Oak Grove Drive

CITY, STATE, ZIP Pasadena, CA 91109 PHONE NO. 818, 354-10635

CONTAINERS: NO. _____ VOLUME/CY 11 WEIGHT/TONS 11

TYPE: TANK TRUCK DUMP TRUCK DRUMS OTHER Roll off Bin

WASTE DESCRIPTION SOIL (Profile 103-00414) GENERATING PROCESS Drill Cuttings / HAND

COMPONENTS OF WASTE		PPM%	COMPONENTS OF WASTE		PPM%
1. <u>SOIL</u>	<u>99-100%</u>		3. <u>METALS</u>	<u><1%</u>	
2. <u>VOC's</u>	<u><1%</u>		4. _____		

SITE ADDRESS _____

PROPERTIES: pH 7-10 SOLID LIQUID OTHER _____

HANDLING INSTRUCTIONS: Wear Appropriate Protective Clothing

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS

Mark Araki TYPED OR PRINTED FULL NAME & SIGNATURE DATE 2/27/03

TRANSPORTER

NAME ART'S DISPOSAL SERVICE

ADDRESS 127 VAN NORMAN ROAD

CITY, STATE, ZIP MONTEBELLO, CA 90640 PICK-UP DATE 2/27/03

PHONE NO. 323 916 7667

TRUCK UNIT I.D. NO. 91 MIKE SHUBIN TYPED OR PRINTED FULL NAME & SIGNATURE DATE 2/27/03

RECEIVING FACILITIES

NAME WASTE MANAGEMENT-McKITTRICK

ADDRESS 56533 HIGHWAY 58 WEST PROFILE NO. 103-004-14

McKITTRICK, CA 93251

CITY, STATE, ZIP _____

PHONE NO. 661 762-7366

_____ TYPED OR PRINTED FULL NAME & SIGNATURE DATE _____

NO. 14953

NON-HAZARDOUS WASTE DATA FORM

GENERATING SITE

NAME JET PROPULSION LABORATORY JET PROPULSION LABORATORY
 Attention: Mark Araki
 ADDRESS 4800 OAK GROVE DRIVE - MS 171-225 4800 OAK GROVE DRIVE
 CITY, STATE, ZIP PASADENA, CA 91109 PASADENA, CA 91109
 PHONE NO. 818 354-0635 SITE CONTACT _____ PROFILE NO. 222948

CONTAINERS: No. 1 GALLONS 2450 Gallons WEIGHT _____

TYPE: TANK TRUCK DUMP TRUCK DRUMS CARTONS OTHER _____

WASTE DESCRIPTION NON-HAZARDOUS WATER GENERATING PROCESS PURGED GROUNDWATER
 COMPONENTS OF WASTE PPM % COMPONENTS OF WASTE PPM %
 1. WATER 99-100% 4. _____
 2. TRACE ORGANICS < 0.001% 5. Profile 222948
 3. _____ 6. BES 859498
 PROPERTIES pH 7-10 SOLID LIQUID SLUDGE SLURRY OTHER _____

HANDLING INSTRUCTIONS: WEAR APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Mark Araki Mark Araki 2/29/03
TYPED OR PRINTED FULL NAME & SIGNATURE DATE

NAME NIETO AND SONS TRUCKING, INC. EPA I.D. NO. _____
 ADDRESS 1281 BREA CANYON ROAD SERVICE ORDER NO. _____
 CITY, STATE, ZIP BREA, CALIFORNIA 92821 PICK UP DATE 2-29-03
 PHONE NO. (714) 990-6855
 TRUCK, UNIT, I.D. NO. 223 GABE MARTINEZ 2/29/03
 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

NAME De Menno Kerdoon EPA I.D. NO. _____
 ADDRESS 2000 N. Alameda Street DISPOSAL METHOD LANDFILL RECYCLER _____
 CITY, STATE, ZIP Compton, CA 90222
 PHONE NO. (310) 537-7100
 _____ / /
 TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L	A	TONS
TRANS		S	B	
C/D		RT/CD	HWDF	NONE

DISCREPANCY

Appendix D

Validation Memo

Data Review and Validation

This section provides an evaluation of the laboratory analytical data for the completeness of data package deliverables. Additionally, all field data were reviewed to verify completion of required documentation. The data were validated following the rules set forth in the National Functional Guidelines for Inorganic Data Review (USEPA, 2002) and National Functional Guidelines for Organic Data Review (USEPA, 1999). Lastly, a statement is presented as to whether the specific data quality objectives were achieved.

Field Quality Assurance Components

The samples collected during these events were appropriately labeled, stored in sample containers on ice, and delivered to Applied Physics & Chemistry Laboratory, Chino, California, in good condition and properly preserved. The sample container chain-of-custody forms were forwarded with the samples to the analytical laboratory. It should be noted that only the analyses that were validated within each laboratory report are listed below.

- **Service ID Number 03-1802** - The samples collected on February 21, 2003 were analyzed for Perchlorate/EPA Method 314.0 low-level, Volatile Organic Compounds (VOCs)/EPA Method 8260B, Formaldehyde/EPA Method 8315A, Methane/EPA Draft Method RSK175, Alcohols/EPA Method 8015B, and Metals/EPA Methods 6010B and 7470A. One quality control (QC) sample, Trip Blank, was included with these samples for analysis of VOCs.
- **Service ID Number 03-3562** - The sample collected on June 4, 2003 was analyzed for Perchlorate/EPA Method 314.0 (low-level), Volatile Organic Compounds (VOCs)/EPA Method 8260B, Formaldehyde/EPA Method 8315A, Methane/EPA Draft Method RSK175, Alcohols/EPA Method 8015B, and Metals/EPA Methods 6010B and 7470A. One QC sample, Trip Blank, was included with these samples for analysis of VOCs.
- **Service ID Number 03-3844** - The sample collected on June 18, 2003 was analyzed for Perchlorate/EPA Method 314.0 (low-level).
- **Service ID Number 03-3960** - The samples collected on June 25, 2003 were analyzed for Perchlorate/EPA Method 314.0 (low-level).
- **Service ID Number 03-3994** - The samples collected on June 30, 2003 were analyzed for Perchlorate/EPA Method 314.0 (low-level) and VOCs/EPA Method 8260B. One QC sample, Trip Blank, was included with these samples for analysis of VOCs.
- **Service ID Number 03-4236** - The samples collected on July 16, 2003 were analyzed for Perchlorate/EPA Method 314.0 (low-level).
- **Service ID Number 03-4356** - The samples collected on July 23, 2003 were analyzed for Perchlorate/EPA Method 314.0 (low-level) and VOCs/EPA Method 8260B. One QC sample, labeled 072303-1,2, was the combination of two Trip Blanks, and was analyzed with these samples for VOCs.

- **Service ID Number 03-5027** - The sample collected on September 4, 2003 was analyzed for Perchlorate/EPA Method 314.0 (low-level), VOCs/EPA Method 8260B, Formaldehyde/EPA Method 8315A, Methane/EPA Draft Method RSK175, Alcohols/EPA Method 8015B, and Metals/EPA Methods 6010B and 7470A. One QC sample, Trip Blank, was included with these samples for analysis of VOCs.

Laboratory Quality Assurance Components

The samples and associated QC blanks were received in good condition and analyzed by Applied Physics & Chemistry Laboratory within the required holding time periods, unless noted. Only sample-specific details and deviations from QC standards are discussed below. In some cases, samples required dilution, and the reporting limits were adjusted accordingly. With the exception of the deviations reported herein, all sample QC parameters were within established control limits. The attached data are valid and usable within the confines of this review.

Perchlorate (EPA Method 314.0, Low-Level)

Service ID Number 03-1802: All samples were diluted 1:5 due to elevated concentrations of perchlorate. Sample MW-1 was selected for the Matrix Spike (MS)/MS Duplicate (MSD) analysis, and had recoveries and a relative percent difference (RPD) within control limits.

Service ID Number 03-3562: Sample IW-1 was diluted 1:100 due to an elevated concentration of perchlorate. A batch sample was used for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-3844: Sample IR2MW-1 was diluted 1:100 due to an elevated concentration of perchlorate. A batch sample was used for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-3960: Samples IW-1 and MW-1 were diluted 1:50, and sample MW-3 was diluted 1:100 due to elevated concentrations of perchlorate. A batch sample was used for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-3994: Samples IW-1 and MW-2 were diluted 1:50, and samples MW-1, MW-3, and MW-7 were diluted 1:100 due to elevated concentrations of perchlorate. A batch sample was used for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-4236: Samples IW-1 (1:25), MW-2 (1:50), and MW-3 (1:100) were diluted due to elevated concentrations of perchlorate. Sample IW-1 was selected for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-4356: Samples MW-1, MW-3, and MW-7 were diluted 1:100 due to elevated concentrations of perchlorate. Sample IW-1 was selected for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-5027: All field samples diluted 1:10 due to elevated concentrations of perchlorate. A batch sample was used for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Volatile Organic Compounds (EPA Method 8260B)

Service ID Number 03-1802: Sample MW-7 was diluted 1:2 due to an elevated concentration of carbon tetrachloride. The Trip Blank detected methylene chloride at 2 J ug/L (20 ug/L Action Level). The results for this compound in samples MW-1 and MW-7 were below the Action Level and were qualified as nondetect “U” at the reporting limit. Sample MW-1 was selected for the MS/MSD analysis, and had recoveries and RPD within control limits. The continuing calibration for 4-methyl-2-pentanone (MIBK) had a percent deviation above the control limit. Therefore, all MIBK results were qualified as estimated “J” if detected and “UJ” if nondetect.

Service ID Number 03-3562: The Method Blank detected 2-butanone (MEK) at 2 ug/L (20 ug/L Action Level). However, this compound was not detected in the associated sample and no action was required. A batch sample was used for the MS/MSD analysis, and had recoveries and RPD within control limits. The initial calibration had an average relative response factor below the control limit for MEK. The sample result for MEK was therefore qualified as estimated “J” if detected and unusable/rejected “R” if nondetect. The continuing calibration for acetone and MEK had a percent deviation above the control limit. The MEK result had already been qualified as rejected, so only the acetone result was qualified as estimated “J” if detected and “UJ” if nondetect.

Service ID Number 03-3994: Sample MW-1 was diluted 1:5 for all compounds, and sample MW-7 was diluted 1:2 due to an elevated concentration of carbon tetrachloride. The Trip Blank detected methylene chloride at 2 J ug/L (20 ug/L Action Level). The results for this compound in samples IW-1, MW-1, and MW-2 were below the Action Level and were qualified as nondetect “U” at the reporting limit. The Method Blank detected MEK at 5.1 J ug/L (51 ug/L Action Level) and methylene chloride at 0.3 ug/L (detected at a higher concentration in the Method Blank). The MEK result for MW-1 was below the associated Action Level and was qualified as nondetect “U” at the reporting limit. A batch sample was used for the MS/MSD analysis, and had recoveries and RPD within control limits. The initial calibration had an average relative response factor below the control limit for MEK. All of the sample results for MEK were therefore qualified as estimated “J” if detected and unusable/rejected “R” if nondetect. The continuing calibration for acetone, bromomethane, carbon disulfide, bromoform, and MEK had a percent deviation above the control limit. The MEK result had already been qualified as rejected, but the results for the other compounds were qualified as estimated “J” if detected and “UJ” if nondetect.

Service ID Number 03-4356: The Trip Blank detected methylene chloride at 1 J ug/L (10 ug/L Action Level). The results for this compound in all of the field sample fell below the Action Level and were qualified as nondetect “U” at the reporting limit. The Method Blank also detected methylene chloride (0.6 ug/L), but at a lower concentration than that detected in the Trip Blank. No additional action was required. A batch sample was used for the MS/MSD analysis, and had recoveries and RPD within control limits. The initial calibration had an average relative response factor below the control limit for acetone. The sample results for acetone were therefore qualified as estimated “J” if detected and unusable/rejected “R” if nondetect. The continuing calibration for bromomethane had a percent deviation above the control

limit. The bromomethane results were therefore qualified as estimated “J” if detected and “UJ” if nondetect.

Service ID Number 03-5027: The Trip Blank detected acetone at 15 J ug/L (150 ug/L Action Level), MEK at 3 J ug/L (30 ug/L Action Level), and methylene chloride at 0.7 J ug/L (7.0 ug/L Action Level). The acetone results in samples IW-1, MW-1, MW-2, and MW-3, the MEK results in samples IW-1 and MW-2, and the methylene chloride result in sample MW-3 fell below the associated Action Levels and were qualified as nondetect “U” at the reporting limit. The Method Blank also detected acetone (12 ug/L), but at a lower concentration than that detected in the Trip Blank. No additional action was required. A batch sample was used for the MS/MSD analysis, and had recoveries and RPD within control limits.

Formaldehyde (EPA Method 8315A)

Service ID Number 03-1802: Sample MW-1 was selected for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-3562: Sample IW-1 was selected for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-5027: Sample IW-1 was selected for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Methane (EPA Draft Method RSK175)

Service ID Number 03-1802: Sample MW-1 was selected for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-3562: A batch sample was used for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-5027: A batch sample was used for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Alcohols (EPA Method 8015B)

Service ID Number 03-1802: Sample MW-1 was selected for the MS/MSD analysis, and had recoveries and RPD within control limits.

Service ID Number 03-3562: An MS/MSD was not included with this batch of samples. However, a Laboratory Control Sample (LCS)/LCS Duplicate (LCSD) was included and had acceptable recoveries and RPD.

Service ID Number 03-5027: A batch sample was used for the MS/MSD analysis, and had recoveries and an RPD within control limits.

Service ID Number 03-1802: A batch sample was used for the MS/MSD analysis, and had recoveries and RPD within control limits. The Method Blank detected chromium (Cr) at 0.77 B ug/L (3.85 ug/L Action Level), Selenium (Se) at 2.8 B ug/L (14 ug/L Action Level), and Thallium (Tl) at 2.6 B ug/L (13 ug/L Action Level). The Tl results in samples MW-1, MW-2, and MW-7, and the Se results in MW-3 and MW-7 were detected below the associated Action Level and were qualified as nondetect “U” at the reporting limit.

Service ID Number 03-3562: A batch sample was used for the MS/MSD analysis, and had recoveries and RPD within control limits. The Method Blank detected Beryllium (Be) at 0.096 B ug/L (0.48 ug/L Action Level) and Vanadium (V) at 0.49 B ug/L (2.46 ug/L Action Level). However, the associated sample did not detect either of these metals and no action was required.

Service ID Number 03-5027: Sample IW-1 was selected for the MS/MSD analysis, and had recoveries and RPD within control limits. Lead (Pb) was detected in two of the continuing calibration blanks; however, these samples were not associated with either of those blanks and no action was required.