

**LOG OF BORING**

PROJECT: MolyCorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID auger	BORING NUMBER: SB-201 DATE STARTED: 5/23/94 DATE COMPLETED: 5/23/94 GROUNDWATER DEPTH: 7 ft ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY 12"	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS	
							Time	Date			
	0					SLAG/GRAVEL; lt.-dk. brown SAND & SILT, some slag, loose-dense, sl. moist @ 4.5 ft - clayey @ 6-9 ft - gravelly, saturated softer drilling @ 9 ft				} @ 7 ft	
	5				Fill						
	10						CL				
	15						grey/brown CLAY, med. plasticity, soft, sl. moist -stiffer drilling @ 17 ft				
	20						Auger Refusal at 19 ft				

NOTES:

PAGE 1 OF

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-202  
 DATE STARTED: 5/24/94  
 DATE COMPLETED: 5/24/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS						
							Time	Date								
	0					GRAVEL, sly, slag sand, loose, sl. moist; clay in mix @ 3ft, cohesive, wet; slag to 4.5ft, brick sand; tan ash @ 5ft, dry										
	1				Fill											
	2						CL									
	3							Soft grey CLAY, med. plasticity, sl. moist; color change to lt. grey/brown;								
	4								SC							
	5									Saturated due to ↑ sand content						
	6										stiffer @ 16 ft					
	7											Auger Refusal at 20.5ft				
	8															
	9															
	10															
	11															
	12															
	13															
	14															
	15															
	16															
	17															
	18															
	19															
	20															
	21															
	22															
	23															
	24															
	25															

NOTES:

**LOG OF BORING**

<p><b>PROJECT:</b> Molycorp, Inc.  <b>PROJECT NO:</b> 5330 -- 00001  <b>LOCATION:</b> Washington, PA  <b>GEOLOGIST:</b> P. Anderson  <b>DRILLER:</b> B. Lawrence  <b>DRILLING/SAMPLING METHOD:</b> 3 1/4" ID Auger</p>	<p align="right"><b>BORING NUMBER:</b> SB-203  <b>DATE STARTED:</b> 5/24/94  <b>DATE COMPLETED:</b> 5/24/94  <b>GROUNDWATER DEPTH:</b>  <b>ELEVATION:</b></p>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS		
							Time	Date				
	0					GRAVEL; black/grey slag/slag sand, loose, sl. moist. Fill @ 4 ft - becomes sandy, grey, cohesive, moist (silt/clay matrix) softer drilling @ 8.5 ft.				7 @ 7.5 ft		
	5											
	8.5											
	10				CL grey CLAY w/ some fine sand, soft, med. plasticity, sl. moist @ 17 ft - color change to lt. brown @ 18 ft - stiffer drilling						little return of cuttings	
	15											
	20											
	20.1											
						Auger refusal at 20.1 ft						

**NOTES:**

PAGE 1 OF

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence

BORING NUMBER: SB-204

DATE STARTED: 5/24/94

DATE COMPLETED: 5/24/94

GROUNDWATER DEPTH:

ELEVATION:

DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD Split Spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY 1/8"	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1		2				FILL - slag / broken slag sand, yellow brick, glass, fly ash, loose, dry	7:57	5/24	100-120	
2		3							13-14	
3	1.5	4	12							
4		8				As Above, some fine lt brown sand at spoon tip	7:55	5/24	100-110	2 Rad
5		8	9		FILL				13-16	
6	3	9							120-130	
7		17				gravelly, brown CLAY (fine, angular), some sand, yellow brick, dense, dry w/ some wet stringers	7:59	5/24	18-19	
8		48	18		FILL					
9	4.5	31								
10		32				FILL - fly ash, brick, slag, dk. grey CLAY & fine SAND, dense, dry, wet at spoon tip	8:01	5/24	100-120	2 Rad
11		27			FILL				16-16.5	
12	6	14	10							
13		7				brick/sand FILL, saturated, contacting grey CLAY of some sl. moist	8:09	5/24	90-100	
14		3	15		FILL				14-15	
15	7.5	2								
16		3				As Above	8:13	5/24	100	2 Rad
17		2	8		FILL				14-15	3 @ 7 ft
18	9	2			CL					
19		3				No Recovery, Sample not staying in spoon	8:19	5/24		
20		4								
21	10.5	7								
22		8				No Recovery, Sample not staying in spoon.	8:21	5/24		
23		9								
24	12	11								
25		3				lt. brown CLAY w/ fine ang. gravel & med sand, saturated, contacting stiff lt. brown CLAY, mottled grey, low plasticity, sl. moist	8:35	5/24	95-100	
26		5	18		CL				14-14.5	
27	13.5	5								
28		3				As Above	8:39	5/24	120	1 Rad
29		4	4		CL				14-15	
30	15	3								

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-204  
 PROJECT NO: 5330 -- 00001 DATE STARTED:  
 LOCATION: Washington, PA DATE COMPLETED:  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: ELEVATION:  
 DRILLING/SAMPLING METHOD:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS
							Time	Date		
31	15.0	2			CL	As Above, w/ some fine sand			100	
32		3				med. plasticity, contacting 0.5 ft			15-	
33	16.5	11	18		SC	Med grey sand, wet, w/ some lt. brown clay, med. dense	8:46	5/24	15.5	
34		12			AL	mottled grey/brown SAND & fine angular GRAVEL w/ some clay, dense, wet; weathered grey clay & shale fragments, hard, dry			100-110	alluvial deposit
35		13							15	16.5-17.5 ft
36	18	17	18				8:50	5/24		
37		27				grey weathered SHALE & SANDSTONE, hard, dry			100	1 Rad
38		50/3"	6				9:02	5/24	14-	
39	19.5								15	

NOTES: AL - Alluvial deposit

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PAGE 1 OF 2

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.C01  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: ~~ES-205~~  
 DATE STARTED: 6/13/94  
 DATE COMPLETED: 6/13/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME RAD - DEPT IN/HR	COMMENTS
							Time	Date		
	0.5					RED DOG AND VITRIFIED SLAG FILL, DRY				
	1.5				FILL					
	3					DK. BROWN SILT AND VITRIFIED BLACK SLAG FILL, DRY				
	4.5				FILL					
	6					OLIVE BROWN CLAY WITH SILT, MED PLASTICITY, DAMP TO WET, BECOMES BROWN WITH DEPTH, tr. SAND. BECOMES MORE SANDY WITH TRACE ROCK FRAGMENTS				
	7.5				CL					
	9									
	10.5									
	12									
	13.5									
	15									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.C01  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-205 (cont'd)  
 DATE STARTED: 6/13/94  
 DATE COMPLETED: 6/13/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGER

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU RAD ppm UG/LR	COMMENTS
							Time	Date		
	15.9					AS ABOVE				
	16.5									
	18.6					BOTTOM OF BORING @ 17.2 FT				
	19.5									
	21.12									
	22.5									
	24.18									
	25.5									
	27.24									
	28.5									
	30.0									

NOTES:

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Noratny (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 206*  
 DATE STARTED: *6/1/94*  
 DATE COMPLETED: *6/1/94*  
 GROUNDWATER DEPTH: *~5'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		SAND CFM - PART #/LOT	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown sand (f-r) some</i>			<i>100-100 2344</i>	<i>Drum</i>
	2			<i>slag (pieces) mixed 1" to</i>						
	3			<i>diameter little silt</i>						
	4			<i>(pieces of wood &amp; plastic)</i>						
	5			<i>(moist - sat)</i>						
	6									
	7				ML	<i>dk brown silt some sand</i>				
	8			<i>(f) trace of rock frag 1/2"</i>						
	9					<i>dk brown silt little clay</i>				
	10					<i>some sand (f) (sat)</i>				
	11									
	12				ML	<i>dk brown silt some</i>				
	13			<i>clay little sand (f) sat</i>						
	14									
	15				ML	<i>dk brown silt some</i>				
	16			<i>clay little sand (f) sat</i>						
	17									
	18									
	19					<i>Auger refusal - 22'</i>				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:



LOG OF BORING

PROJECT: *Molycorp Inc*

BORING NUMBER: *SB 206*

PROJECT NO: *5330.001*

DATE STARTED: *6/1/94*

LOCATION: *Washington, PA.*

DATE COMPLETED: *6/1/94*

GEOLOGIST: *B. Dressel*

GROUNDWATER DEPTH: *5*

DRILLER: *Doug Norrany (Terra Testing)*

ELEVATION:

DRILLING/SAMPLING METHOD: *Auger Cavings*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	1				SP	<i>dk brown sand(s-s) some silt</i>				
	2					<i>gravel mix w/ silt - 1/4" dia</i>				
	3					<i>(moist-sat) (plastic, sand)</i>				
	4									
	5				ML	<i>dk brown silt some sand(f)</i>				
	6					<i>trace of rock frag 1/4" dia</i>				
	7					<i>(sat)</i>				
	8				ML					
	9					<i>dk brown silt little clay</i>				
	10					<i>some sand(f) (sat)</i>				
	11				ML					
	12					<i>dk brown silt some clay</i>				
	13					<i>little sand(f) (sat)</i>				
	14									
	15									
	16									
	17									
	18									
	19					<i>Auger refusal - 22'</i>				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: *MolyCorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, WA*  
 GEOLOGIST: *B. Drossel*  
 DRILLER: *Doug Murray (Terria Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 207*  
 DATE STARTED: *6/1/94*  
 DATE COMPLETED: *6/1/94*  
 GROUNDWATER DEPTH: *~4'*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRG. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		LABORATORY	COMMENTS
							Time	Date		
0										
1						<i>blow-dk brown silt</i>				
2						<i>some sand(s) and silt</i>				
3						<i>gravel mixed s &amp; silty</i>				
4						<i>trace of clay</i>				
5						<i>harder material (slightly)</i>				
6						<i>(2-4" red-nc's (wood-nc's))</i>				
7						<i>(metal - saw)</i>				
8										
9										
10						<i>dk brown silt some sand(s)</i>				
11						<i>trace of clay &amp; red fragments</i>				
12						<i>5 1/2" diam. (saw)</i>				
13										
14						<i>CL brown clay some silt</i>				
15						<i>light sand(s) (saw)</i>				
16						<i>(saw)</i>				
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

NOTES:

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Teaming)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 207*  
 DATE STARTED: *6/1/94*  
 DATE COMPLETED: *6/1/94*  
 GROUNDWATER DEPTH: *~4'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	1									
	2									
	3				Fill	<i>brown-dk brown silt some sand(f) and silt/gravel mix &lt; 3/8" dia + trace chy</i>				
	4					<i>harder material (shale, metal, wood) at (2-4', 10-11') (moist-sat)</i>				
	5									
	6									
	7									
	8				ML	<i>dk brown silt some sand(f) trace clay &amp; rock frag &lt; 1/8" dia (sat)</i>				
	9									
	10									
	11									
	12				CL	<i>brown clay some silt (1/2) sand(f) (spheric) (sat)</i>				
	13									
	14									
	15									
	16									
	17									
	18					<i>Auger refusal - 20'</i>				
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 208*  
 DATE STARTED: *6/1/94*  
 DATE COMPLETED: *6/1/94*  
 GROUNDWATER DEPTH: *~4'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRG. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TERRA CPM ppm MR/hr	COMMENTS
							Time	Date		
0										
1					Fill	<i>brown silt some sand (f)</i>			100-120 23-24	Drum
2				<i>and slag/wood mixed &lt;math&gt;\frac{1}{8}&lt;/math&gt;"</i>						
3				<i>diam trace clay</i>						
4				<i>harder material (calc/pebb)</i>						
5				<i>(2-4') (dry-sat)</i>						
6										
7					ML	<i>dk brown silt some sand</i>				
8						<i>(f) trace of clay and</i>				
9						<i>rock frag. &lt;math&gt;\frac{1}{8}&lt;/math&gt;" diam. (sat)</i>				
10					ML	<i>dk brown silt some clay</i>				
11						<i>trace of sand (f) (plastic)</i>				
12					-	<i>(sat)</i>				
13					CL	<i>brown clay some silt trace</i>				
14						<i>of sand (f) (plastic) (sat)</i>				
15										
16					ML	<i>brown silt little clay trace</i>				
17						<i>of sand (f) (sat)</i>				
18										
19										
20										
21						<i>Auger refusal - 20.0'</i>				
22										
23										
24										
25										
26										
27										
28										
29										
30										

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: 58-209  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/24/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/24/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					GRAVEL, brown/blk., loose, dry slag/slag sand; fire brick @ 2ft, grind away; red dog @ 2.5ft; clayey @ 3ft; wet @ 7.5ft				
	5				Fill					
	8.5									
	10									
	15									
	18					soft, grey CLAY w/ some fine sand & silt, wet, low plasticity; @ 12 ft - less lt. brown sand, med plasticity @ 17 ft - stiffened drilling				
	20					Auger Refusal at 18.6 ft				

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*

BORING NUMBER: *SB 210*

PROJECT NO: *5330.001*

DATE STARTED: *5/24/04*

LOCATION: *Washington, PA.*

DATE COMPLETED: *5/24/04*

GEOLOGIST: *B. Dressel*

GROUNDWATER DEPTH:

DRILLER: *Doug Moroney (Terra Testing)*

- ELEVATION:

DRILLING/SAMPLING METHOD: *Auger Cuttings*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MOI CPI ppm wt/wt	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown silt some</i>			120	<i>Silt.</i>
	2			<i>shg/gravel mixed 2 1/2" dia.</i>				155-		
	3			<i>and sandstone)</i>				16		
	4			<i>hard pieces of clay/metal (6-7)</i>				10-		
	5				<i>(moist-sat)</i>			100	<i>0-5'</i>	
	6							13-16		
	7				ML	<i>Brown silt some sandst)</i>				
	8					<i>little clay (plastic with</i>				
	9					<i>depth) (sat)</i>				
	10									
	11									
	12									
	13									
	14									
	15									
	16					<i>Area refusal - 10"</i>				
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 211*  
 DATE STARTED: *6/2/94*  
 DATE COMPLETED: *6/2/94*  
 GROUNDWATER DEPTH: *~25'*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		SPT CORR N <sub>60</sub> /ft	COMMENTS
							Time	Date		
	0									
	1					<i>dk brown silt some slag/</i>			<i>100</i>	
	2				<i>R11</i>	<i>gravel mix &lt; 3/4" diam little</i>			<i>15-16</i>	<i>0-5'</i>
	3					<i>sand(s), hard material encountered</i>				
	4					<i>from 4-7" (moist - sat)</i>			<i>130</i>	<i>5'-10'</i>
	5					<i>gray silt some sand(s)</i>			<i>18</i>	
	6				<i>ML</i>	<i>little clay trace rock frag.</i>			<i>120</i>	<i>10-15'</i>
	7					<i>&lt; 1/2" diam (sat)</i>			<i>18</i>	
	8					<i>gray silt some clay trace</i>			<i>100-110</i>	<i>15-19.3</i>
	9				<i>ML</i>	<i>of sand(s) (sat)</i>			<i>15</i>	
	10									
	11									
	12				<i>ML</i>	<i>brown silt some clay</i>				
	13					<i>(sat)</i>				
	14									
	15									
	16					<i>TD @ 18.5 ft</i>				
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330.001  
 LOCATION: Washington Pa.  
 GEOLOGIST: B. Dresser -  
 DRILLER: D. Novotny -

BORING NUMBER: SB 212  
 DATE STARTED: 5/25/94  
 DATE COMPLETED: 5/25/94  
 GROUNDWATER DEPTH: ~6'  
 ELEVATION:

DRILLING/SAMPLING METHOD: CME 45, 3/4" ID hollow stem augers  
 2" split spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME CPM ppm MR/M	COMMENTS
							Time	Date		
01	0	8								
02	1.5	15	73%		Fill	silt some slag (reddish ash) little sand (f) trace clay (moist-damp) (dlt brown)	825	5/25/94	140	
03	1.5	16	(1.1)						14	
04	2	14	60%		Fill	silt some slag & yellow sub & sand (m-f) (v. damp) (brown)	830	5/25/94	130	
05	3	10							15	
06	3.0	8	(0.9)						15	
07	4	9	53%		"	(top) sand (m-f) some silt little slag (bot) silt some clay little sand (f) (plastic)	835	5/26/94	120	
08	4.5	5	(0.8)						15	
09	5	5			"	silt some clay little sand (f) (plastic) (damp) (brown)	840	5/26/94	120	
10	6.0	10	67%						120	
11	7	10	(1.0)						120	
12	7.5	10			"	silt some clay little sand (f) (plastic) (damp) (brown)	845	5/26/94	140	
13	8	3	67%		"	silt some clay little sand (f) (plastic) (sat) (brown)	845	5/26/94	15	
14	8.5	4	(1.0)						15	
15	9.0	3			"	silt some sand (f) & rock frag. 1/2" diam. piece of wood (sat) (dlt brown)	850	5/26/94	120	
16	9.5	3	(1.3)						15.5	
17	10	1	67%		"	(top) silt some sand (f) & rock frag. 1/2" diam. (bot) silt some clay trace			90-100	
18	10.5	3	(1.0)		ML	sand (f) (plastic)	855	5/26/94	16	
19	11	3							16	
20	11.5	3	40%			silt some clay trace sand (f) (plastic) (sat) (gray-brown)			90	
21	12.0	4	(0.6)		ML		0900	5/26/94	15	
22	12.5	5							15	
23	13	4	67%			clay some silt trace sand (f) (plastic) (sat) (brown & gray)			150	
24	13.5	4	(1.0)		CL		0905	5/26/94	17	
25	14	4	100%			clay some silt little sand (f) (plastic) (sat) (gray & brown)			120	
26	14.5	3							120	
27	15.0	4	(1.5)		CL		0910	5/26/94	16.5	

NOTES:



LOG OF BORING

PROJECT: *MolyCorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, Pa.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *D. Novakny*

BORING NUMBER: *SB 212*  
 DATE STARTED: *5/25/44*  
 DATE COMPLETED: *5/25/44*  
 GROUNDWATER DEPTH: *~6'*  
 ELEVATION:

DRILLING/SAMPLING METHOD: *CME 45, 3 1/4" ID hollow stem augers  
 2" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HYD CPT ppm after	COMMENTS
							Time	Date		
31	1									
32	2		10%			<i>brown fine clay some silt trace sand (f)</i>			120-	
33	16.5	3	(1.5)		SP	<i>(mid) sand (m-f) some silt trace clay grades into sand (m-f) some silt (sai)</i>	0915	6/25/44	16	
34	9		80%			<i>(top) 9" sand (m-f) some silt</i>			120	
35	9					<i>(mid) sand (m-c) some rock frag &lt; 1/2"</i>				
36	19.0	6	(1.2)		SP	<i>diam trace silt (alluvial) (sai)</i>	0920	5/25/44	16	
37	9		35			<i>(top) 9" sand (m-c) some rock</i>			110-	
38	9					<i>frag. &lt; 1/2" diam. trace silt (alluvial)</i>			120	
39	19.5	9	(0.7)		SP	<i>(bot) weathered shale (gray)</i>	0925	5/25/44	16	
40	10									
41	11									
42	21.0	12								
43	13									
44	14									
45	22.5	15								
46	16									
47	17									
48	24.0	18								
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*

BORING NUMBER: *SB 213*

DATE STARTED: *6/24/98*

DATE COMPLETED: *5/24/98*

GROUNDWATER DEPTH: *~ 20'*

ELEVATION:

DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		SPT CPM Depth d/W	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dark brown sand (f) some</i>			<i>120</i>	<i>surf</i>
	2					<i>slag/gravel etc &lt; 2" dia</i>			<i>14-15</i>	
	3					<i>white silt (mat)</i>			<i>120-130</i>	<i>0-5'</i>
	4					<i>hard slag &amp; red clay (~3-6')</i>			<i>15</i>	
	5									
	6				SP	<i>Gray sand (f) some silt</i>			<i>120-140</i>	<i>5-10'</i>
	7					<i>(possibly some of slag) (sat)</i>			<i>18.5</i>	
	8									
	9									
	10					<i>brown (border drilling, no</i>			<i>17-18</i>	
	11				CL	<i>specimen? clay some silt</i>			<i>140-</i>	<i>10-15'</i>
	12					<i>white sand (f) more plastic</i>			<i>150</i>	
	13					<i>wich depth (sat)</i>			<i>15-</i>	<i>15-20.3'</i>
	14								<i>16</i>	
	15									
	16									
	17					<i>Auger refusal - 20.3'</i>				
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*

BORING NUMBER: *SB 214*

PROJECT NO: *5330.001*

DATE STARTED: *5/24/94*

LOCATION: *Washington, AL*

DATE COMPLETED: *5/24/94*

GEOLOGIST: *B. Dressel*

GROUNDWATER DEPTH: *~6-7'*

DRILLER: *Doug Moroney (Terra Testing)*

ELEVATION:

DRILLING/SAMPLING METHOD: *Auger Cavings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPT - NR/1	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>silt brown sand (cont) some</i>			120	<i>Sulf</i>
	2					<i>silt and slag/gravel mat</i>			24	
	3					<i>1/2" dia (moist)</i>				
	4					<i>gray</i>			160-	<i>0-5'</i>
	5				SP	<i>sand (cont) little silt trace</i>			180	
	6					<i>slag (damp-sat)</i>			17	
	7					<i>silt brown</i>			150	<i>5-10'</i>
	8				SP	<i>sand (cont) little silt trace</i>			20-24	
	9					<i>slag and clay</i>				
	10								100	<i>10-15'</i>
	11								24	
	12				ML	<i>brown silt some sand (cont)</i>			100	<i>15-19'</i>
	13					<i>trace clay (sat)</i>			20-24	
	14									
	15				CL	<i>brown clay some silt</i>				
	16					<i>trace sand (f) (sat)</i>				
	17									
	18									
	19					<i>Auger refusal - 19'</i>				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*

BORING NUMBER: *SB 215*

DATE STARTED: *5/20/94*  
 DATE COMPLETED: *5/20/94*  
 GROUNDWATER DEPTH: *~50'*  
 - ELEVATION:

DRILLER: *Doug Noratny (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PROG. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MWD CPM ppm wt/hr	COMMENTS
							Time	Date		
0										
1					Fill	<i>dk brown sand(m-f) some</i>			150 17-19	<i>soil.</i>
2				<i>silt &amp; slag/gravel mixture</i>						
3				<i>(moist - v. damp)</i>						
4										
5					Fill	<i>dk brown sand(m-c) some</i>			80 10	<i>0-5'</i>
6				<i>slag/gravel mixture gets siltier</i>						
7				<i>with depth, pieces of</i>						
8				<i>hard slag (sat)</i>						
9					CL	<i>Brown &amp; Gray clay some</i>			80 10	<i>10-15'</i>
10				<i>silt trace of sand(?)</i>						
11				<i>(plastic greater with depth)</i>						
12				<i>(sat)</i>						
13										
14										
15										
16										
17										
18										
19										
20										
21						<i>Harder drillings</i>				
22										
23						<i>Auger return - 222</i>				
24										
25										
26										
27										
28										
29										
30										

NOTES:

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, MA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 216*  
 DATE STARTED: *8/20/04*  
 DATE COMPLETED: *8/20/04*  
 GROUNDWATER DEPTH: *15'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MNH CPT APPR MR/HR	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown sand (u-f) some</i>			100-	<i>surf</i>
	2			<i>slag/gravel mix (&lt; 1" diam.)</i>				120		
	3			<i>some silt trace of glass</i>				12-13		
	4			<i>hard slag pieces (2-6')</i>						
	5			<i>(metal - sat)</i>				120		
	6							17		
	7								<i>0-5'</i>	
	8									
	9									
	10									
	11									
	12									
	13				ML					
	14				<i>Brown silt little clay trace</i>					
	15				<i>of sand (f) (sat)</i>					
	16									
	17				CL					
	18				<i>Brown - Gray clay some</i>					
	19				<i>silt trace sand (f) (sat)</i>					
	20									
	21				<i>Auger Refused - 22.5'</i>					
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: *Molycorp Inc*

BORING NUMBER: *SB 217*

PROJECT NO: *5330.001*

DATE STARTED: *5/23/94*

LOCATION: *Washington, PA.*

DATE COMPLETED: *5/23/94*

GEOLOGIST: *B. Dressel*

GROUNDWATER DEPTH: *~4.5'*

DRILLER: *Doug Norrany (Terra Testing)*

ELEVATION:

DRILLING/SAMPLING METHOD: *Auger Cummings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Water CPM ppm NR/AC	COMMENTS
							Time	Date		
	0									
	1					<i>dk brown sand (s-f) some</i>			<i>120</i>	<i>Surf.</i>
	2					<i>silt &amp; slag (f) trace (red dog)</i>			<i>13-14</i>	
	3					<i>(dry)</i>				
	4				<i>Fill</i>	<i>hard slag + red dog (20-90)</i>			<i>120-160</i>	<i>0-5'</i>
	5					<i>(damp-sat)</i>			<i>145-15</i>	
	6									
	7								<i>120-</i>	<i>10-15'</i>
	8				<i>ML</i>	<i>gray &amp; brown silt some</i>			<i>160</i>	
	9					<i>clay &amp; trace sand (f) &amp; gravel</i>			<i>17</i>	
	10					<i>&lt; 1/2" diam (plastic) (sat)</i>			<i>120</i>	<i>15-20'</i>
	11								<i>16</i>	
	12									
	13					<i>brown</i>			<i>120</i>	<i>22'</i>
	14				<i>ML</i>	<i>silt some sand (f) w/lt</i>			<i>15-16</i>	
	15					<i>clay (sat)</i>				
	16									
	17									
	18				<i>CL</i>	<i>brown clay some silt</i>				
	19					<i>trace sand (f) (sat)</i>				
	20									
	21									
	22									
	23					<i>Auger refusal - 23'</i>				
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *MolyCorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, MA.*  
 GEOLOGIST: *B. Dressel*

BORING NUMBER: *SB 218*  
 (MW23)

DATE STARTED: *5/23/94*  
 DATE COMPLETED: *5/23/94*  
 GROUNDWATER DEPTH:  
 - ELEVATION:

DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Miles (P-1) (P-2) (P-3) (P-4)	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown sand (s) some</i>			150	<i>Surf.</i>
	2			<i>silt sand clay/gravel mix</i>				40		
	3			<i>2 3/4" diam</i>						
	4			<i>harder material (cobb?) (d=0.5)</i>				150-		
	5				<i>(major - sat)</i>			180	<i>0-5'</i>	
	6							40		
	7							250		
	8							35-40	<i>5-10'</i>	
	9					<i>Alternating sequences of</i>				
	10				CL	<i>brown clay some silt some</i>			180-	<i>10-15'</i>
	11					<i>sand (s) (sat)</i>			200	
	12				ML	<i>sand.</i>			35	
	13					<i>brown silt some sand (s)</i>			180-	<i>15-20'</i>
	14					<i>trace of clay (sat)</i>			200	
	15								35-	
	16								38	
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 219*  
 DATE STARTED: *5/23/91*  
 DATE COMPLETED: *5/23/91*  
 GROUNDWATER DEPTH:  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MPPM CPM ppm AR/HR	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown - brown sand (m-f)</i>			130-	<i>surf.</i>
	2			<i>some silt and clay/growth</i>				140		
	3			<i>with 1/2" dia (scrap metal,</i>				23		
	4			<i>reddish wood) (dry-sat)</i>						
	5							150		
	6						30	<i>0-5'</i>		
	7									
	8				CL	<i>interstratified sequences of</i>				
	9			<i>brown clay some silt trace</i>						
	10					<i>at sand (F) (sat) (plast)</i>				
	11					<i>sand</i>				
	12				ML	<i>brown silt sand Sand (F)</i>				
	13			<i>light clay (sat) (photo)</i>						
	14									
	15									
	16									
	17									
	18					<i>Auger refusal - 183</i>				
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:



LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 220*  
 DATE STARTED: *5/27/94*  
 DATE COMPLETED: *5/27/94*  
 GROUNDWATER DEPTH: *~20'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		WET WT GRAVITY WET/W	COMMENTS	
							Time	Date			
	0										
	1				Fill	<i>brown silt some sand (m-f) and sh/sand mix &lt; 3/8"</i>			130	<i>surf.</i>	
	2										95
	3										130
	4										17.5
	5					<i>(2-5.5') casing - out</i>					
	6				ML S	<i>alternating sequence of brown sand-silt some sand (s) and</i>				<i>0-5'</i>	
	7										
	8										
	9				CL	<i>brown/gray clay some silt trace sand (s)</i>					
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18					<i>Auger Return - 29B</i>					
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5830.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 221*  
 DATE STARTED: *5/27/94*  
 DATE COMPLETED: *6/27/94*  
 GROUNDWATER DEPTH: *~2'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MINI CAN PART #	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>brown silt some sand</i>			120	<i>swt.</i>
	2			<i>(6-in) and slag/gravel mix</i>				14		
	3			<i>1/2" silica (red clay)</i>				120		
	4			<i>harder material (2'-2.5') +</i>				11-		
	5			<i>(4-4.5') not able to</i>				10.5		
	6			<i>penetrate (moist-sat)</i>						
	7									
	8									
	9									
	10					<i>Auger refusal 4.5'</i>				
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *MolyCorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, MA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Norbury (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Cennings*

BORING NUMBER: *SB 222*  
 DATE STARTED: *5/27/94*  
 DATE COMPLETED: *5/27/94*  
 GROUNDWATER DEPTH: *~2'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Moist Cp ppm w/hr	COMMENTS
							Time	Date		
	0									
	1					<i>brown silt some sand (t)</i>			<i>00</i>	
	2					<i>+ silt / gravel mix &lt; 1/2"</i>			<i>13.5-</i>	<i>surf.</i>
	3				<i>Fill</i>	<i>diam harder material (7-28)</i>			<i>14</i>	
	4					<i>(moist - sat)</i>			<i>80</i>	<i>0-5'</i>
	5								<i>11</i>	
	6									
	7					<i>alternating sequence of</i>			<i>100-</i>	
	8				<i>ML</i>	<i>silt dk brown to gray</i>			<i>140</i>	<i>5-10'</i>
	9					<i>silt some sand (t) trace</i>			<i>13</i>	
	10					<i>of clay + rock frag. &lt; 1/2"</i>				
	11				<i>CL</i>	<i>diam (sat)</i>				
	12					<i>and.</i>				
	13					<i>Brown + gray clay some</i>				
	14					<i>silt trace of sand (t)</i>				
	15					<i>(phatic) (sat)</i>				
	16									
	17									
	18					<i>Auger refusal - 17.4'</i>				
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Teaming)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 223*  
 DATE STARTED: *6/2/94*  
 DATE COMPLETED: *6/2/94*  
 GROUNDWATER DEPTH: *na*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME CPM ppm <i>u/l</i>	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown silt some slag/</i>			<i>120</i>	<i>Surf</i>
	2					<i>gravel mix &lt; 3/4" diam holes</i>			<i>18.5</i>	
	3					<i>sand (f) hard material encountered</i>				
	4					<i>(glass, metal, redder) 4-5'</i>			<i>80</i>	<i>0-5'</i>
	5					<i>(metal - sand)</i>			<i>16</i>	
	6									
	7									
	8					<i>Auger refusal - 8.5</i>				
	9									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Noratny (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Cuttings*

BORING NUMBER: *SB 224*  
 DATE STARTED: *5/25/94*  
 DATE COMPLETED: *5/25/94*  
 GROUNDWATER DEPTH:  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME per hr	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown-gray sand (f-r)</i>			<i>35</i>	<i>cuttings</i>
	2					<i>some slag/peave/ sized</i>				
	3					<i>4" dia little silt matrix</i>				
	4					<i>harder material (7.5-8.5)</i>				
	5					<i>(moist - sat)</i>				
	6									
	7				ML	<i>alternating alternating sequence</i>				
	8					<i>of silt some clay trace</i>				
	9					<i>sand (f) and silt some</i>				
	10					<i>sand (f) trace clay</i>				
	11					<i>(sat)</i>				
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19					<i>Auger Refusal - 18.5</i>				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 225*  
 (MW-24)  
 DATE STARTED: *5/25/94*  
 DATE COMPLETED: *5/25/94*  
 GROUNDWATER DEPTH: *~ 7.0'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME (min)	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown sand (s-f) some</i>			<i>90</i>	<i>swf</i>
	2					<i>slag/gravel mix w/ 1/2" dia</i>				
	3					<i>and silt</i>			<i>11-15</i>	
	4					<i>hard slag material &lt; 1" dia</i>				
	5					<i>(2-3.5') (moist-sat)</i>			<i>19</i>	
	6					<i>(8-10.5')</i>				
	7									
	8				SP	<i>brown sand (f) some</i>				
	9					<i>silt alternating with</i>				
	10					<i>silt some clay (plast)</i>				
	11					<i>(sat)</i>				
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5830.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Norrany (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Cuttings*

BORING NUMBER: *SB 226*  
 DATE STARTED: *5/25/94*  
 DATE COMPLETED: *5/25/94*  
 GROUNDWATER DEPTH: *~70'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME (min)	COMMENTS
							Time	Date		
0										
1										
2					Fill	<i>dk. brown silt some sand &amp; shp/gravel mixture (reddish)</i>			120	<i>surf.</i>
3						<i>(moist)</i>			21	
4									200	<i>5-10'</i>
5					Fill	<i>lt gray to dk gray sand (m)</i>			50	
6						<i>some silt &amp; shp 1/2" diam</i>			150	<i>10-15'</i>
7						<i>(moist-sat)</i>			20	
8					ML	<i>gray &amp; brown silt some clay</i>				
9						<i>trace of sand (s) (plastic)</i>				
10						<i>(sat) (no return of auger cuttings)</i>				
11										
12										
13										
14						<i>Auger refusal - 21'</i>				
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330 -- 00001

BORING NUMBER: SB-227

LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson

DATE STARTED: 5/20/94

DATE COMPLETED: 5/20/94

DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

GROUNDWATER DEPTH:

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY 12"	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS
							Time	Date		
	0					grey slag/slag sand, wood; vitrified slag for cuttings -strong odor of garlic				
	5				Fill					
	10									
	12.1									
	15				CL		grey CLAY becoming mottled w/ brown; soft-stiff, sl. moist, low-med. plasticity, very little cuttings			
	20									
	23.3									
	25					Auger Refusal at 23.3 ft.				

NOTES: - difficult access to original hole; shifted by 2 ft



LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB-228  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/20/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/20/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH: 7 ft  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD split spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1		2				grey med. SAND; dark grey/brown SILT; vitrified slag, loose, dry	8:04	5/20	200	
2		8			Fill					
3	1.5	10	13							
4		21				As Above, dense w/ brick, glass	8:06	5/20	800-900	
5		26	15		"					
6	3	28								
7		16				fine, w-sorted grey SAND - 6" layer, then fill as before, glass, bricks dry	8:08	5/20	600-800	
8		14			"					
9	4.5		14							
10		4				Fill as before, purple glass, wood	8:22	5/20	250	
11		3			"					
12	6	4	10							
13		3				Fill as before, wet @ 7 ft	8:28	5/20	200	7 @ 7 ft
14		3			"					
15	7.5	3	5							
16		2				As Above (possibly fill-in), possibly on top of clay layer & fill is pushing into it w/ recovery	8:30	5/20	200	
17		3	4		-					
18	9	3								
19		3				No Recovery	8:36	5/20	-	
20		3			-					
21	10.5	3								
22		36				grey/dk. grey fine SAND & SILT (alt. layers), moist dry, friable-loose	8:41	5/20	250	Top layer of water is purple
23		50	14		SM					
24	12	18								
25		3				dk. grey CLAY w/some silt, med. plasticity, soft-med, stiff, sl. moist	8:49	5/20	250	
26		3	10		CL					
27	13.5	4								
28		5				No Recovery, probably pulled out of spoon when it did not break from formation	8:52	5/20	-	
29		9			-					
30	15	11								

NOTES: - hole shifted 6 ft. East due to overhead power lines

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-228

DATE STARTED:  
 DATE COMPLETED:  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS
							Time	Date		
31	15.0	4				dk. grey CLAY, soft-stiff, med. plasticity; color grading to mottled grey/lt. brown	9:00	5/20	250	
32		4	13		CL				50	
33	16.5	7								
34		2			CL	As Above	9:03	5/20	150 - 200	
35		2	6						50	
36	18	2								
37		HW			CL	CLAY as Above w/ some fine angular gravel, soft, wet	9:12	5/20	200	
38		1	8						45	
39	19.5	2								
40		3			AL	mottled grey/brown/black CLAY & GRAVEL (alluvial dep.); contacting hard grey shale	9:16	5/20	200	
41		16	18						45	
42	21	55								

NOTES: AL - Alluvial Deposit

LOG OF BORING

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330.001  
 LOCATION: Washington Pa.  
 GEOLOGIST: B. Dressel  
 DRILLER: D. Novotny  
 DRILLING/SAMPLING METHOD: CME 45, 3 1/4" ID hollow stem augers  
 2" split span

BORING NUMBER: SB 230  
 DATE STARTED: 5/20/94  
 DATE COMPLETED: 5/20/94  
 GROUNDWATER DEPTH: ~6.5'  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Time CPM ppm MR/hr	COMMENTS
							Time	Date		
01	0	4				dk brown silt some sand (w-f) and			200	
02	1	9	47%		Fill	slag/gravel mix trace ash (1)				
03	1.5	18	(0.7)			red dgs (moist)	815	5/20/94	50	
04	2	22	47%			dk brown silt some sand (w-f) and			200	
05	3	13			"	slag/gravel mixed < 1" diam			35-	
06	3.0	10	(0.7)			(moist)	820	5/20/94	40	
07	4	5	40%			dk brown sand (w-f) some silt and			260	
08	5	6			"	slag/gravel mixed < 1" diam				
09	4.5	6	(0.6)			trace (flashed?) (moist)	825	5/20/94	35	
10	10	8	80%			dk brown sand (w-f) some silt little slag			180	
11	11	4			"	mixed with rock frag. < 1/2" diam.				
12	6.0	8	(1.2)			(vdamp-set)	830	5/20/94	35	
13	12	18	67%			silt little sand (f) trace clay			180	
14	13	10			"	and rock frag < 1" diam, trace of			35-	
15	7.5	10	(1.0)			light yellow unknown material (sat)	835	5/20/94	40	
16	15	8	20%			dk brown sand (w-f) some silt and			150	
17	17	6			"	slag/gravel mixed < 1/2" diam				
18	9.0	3	(0.3)			(sat)	840	5/20/94	35	
19	19	8	67%			dk brown sand (w-f) some silt and			200	
20	20	8			"	slag < 1/2" diam piece of wood				
21	10.5	4	(1.0)			(sat)	845	5/20/94	35	
22	22	0								
23	23	1								
24	12.0	2	(NR)							
25	25	6	93%			dk brown sand (w-f) some silt and slag < 1/4"			180-	
26	25	6				diam (bot) silt little sand (f)			200	
27	13.5	4	(1.4)		ML	trace rock frag < 1/2" diam	853	5/20/94	35-40	
28	28	2	53%			silt little sand (f) trace rock frag			150-	
29	29	3				< 1/2" diam (bot) 1/2 clay some silt			180	
30	15.0	4	(0.8)		CL	trace sand (f) (plastic) (sat)	855	5/20/94	35-40	

NOTES:

LOG OF BORING

PROJECT: *MolyCorp, Inc.*

BORING NUMBER: *SB 230*

PROJECT NO: *5330.001*

DATE STARTED: *5/20/94*

LOCATION: *Washington, PA*

DATE COMPLETED: *5/20/94*

GEOLOGIST: *B. Dressel*

GROUNDWATER DEPTH: *~6.5'*

DRILLER: *D. Novakny*

ELEVATION:

DRILLING/SAMPLING METHOD: *CME 45, 3 1/4" ID hollow stem augers  
2" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMA CPM ppm w/ft	COMMENTS
							Time	Date		
31	0	2								
32	2	4	100%			<i>brown, gray &amp; rust colored</i>			150	
33	16.5	4	(1.5)		CL	<i>clay samp silt (plastic) (sat)</i>	905	<i>5/20/94</i>	35	
34	4	3	87%			<i>brown, gray &amp; rust colored (sat)</i>			150	
35	5	2				<i>clay samp silt (plastic) saturated</i>				
36	18.0	6	(1.3)		CL	<i>clay samp silt &amp; sand (1-2) (slightly plastic)</i>	908	<i>5/20/94</i>	35	
37	7	wh				<i>(top) silt little clay</i>			150	
38	8	1	67%			<i>bot 15" clay samp silt (plastic)</i>				
39	19.5	9	(1.0)		ML	<i>(sat) (brown)</i>	918	<i>5/20/94</i>	35	
40	10	3				<i>clay samp silt (plastic) (bot) sand</i>			120-150	
41	11	2	67%			<i>(sat) samp silt &amp; rock frag. &lt; 1/2" dia.</i>				
42	26.0	12	(1.0)		CL	<i>tan clay (sat)</i>	920	<i>6/20/94</i>	35	
43	13	25				<i>brown sand (sat) samp rock frag. &lt; 3/8"</i>			150	
44	14	50/4	60%			<i>dian trace silt (bot) 1/16" w/stand</i>				
45	22.5	15	(0.9)		SP	<i>shale</i>	927	<i>6/20/94</i>	35	
46	16									
47	17					<i>T.D. @ 21.9 ft.</i>				
48	24.0	18								
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*

BORING NUMBER: *SB 231*

PROJECT NO: *5330.001*

DATE STARTED: *5/17/94*

LOCATION: *Washington, PA.*

DATE COMPLETED: *5/17/94*

GEOLOGIST: *B. Dressel*

GROUNDWATER DEPTH: *21.9'*

DRILLER: *Doug Moroney (Teria Testing)*

- ELEVATION:

DRILLING/SAMPLING METHOD: *Auger Castings*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>brown gravel and slag mixed</i>				
	2					<i>some sand (s) and silt</i>				
	3				"	<i>(moist)</i>				
	4					<i>some brown sand (s-f) some silt</i>				
	5				"	<i>little gravel &amp; slag mixed</i>				
	6					<i>(moist)</i>				
	7				"	<i>hard slag or rocks with brown</i>				
	8					<i>clay some silt trace of</i>				
	9				"	<i>sand (s-f) &amp; rock frags (1/2"</i>				
	10					<i>diam) (plastic) (dry-sat)</i>				
	11				ML	<i>Brown silt trace of</i>				
	12					<i>clay and sand (sat)</i>				
	13				CL					
	14					<i>Brown clay some silt</i>				
	15				"	<i>(plastic) (sat)</i>				
	16									
	17									
	18									
	19									
	20					<i>Auger Refusal - 21.3'</i>				
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: *MolyCorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, MA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Morotny (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Cuttings*

BORING NUMBER: *SB 232*  
 DATE STARTED: *5/19/94*  
 DATE COMPLETED: *5/19/94*  
 GROUNDWATER DEPTH: *~20'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRQ-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		PUMP RATE (gpm) or (hr)	COMMENTS
							Time	Date		
	0									
	1				Fill	Red-brown sand (m-f) some silt and red dog/gravel mix (moist)			160	soft
	2								18	
	3									
	4				"	Sand (m-f) some silt and slag/gravel mix (wood) (moist)			120	1'
	5								22	
	6				"	Hard slag or red dog			300	2'
	7								24	
	8				ML	Gray & brown silt some clay little sand (t) (sat)			300	5'
	9								24	
	10				?	Hard material (slag or metal?)			120	10-15'
	11								30	
	12				CL	Red gray & brown clay some silt trace sand (t) (plastic) (sat)			126	15-20'
	13								20	
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: Molycomp, Inc.  
 PROJECT NO: 5330.001  
 LOCATION: Washington Pa.  
 GEOLOGIST: B. Dressel  
 DRILLER: D. Novatny  
 DRILLING/SAMPLING METHOD: CME 45, 3 1/4" ID hollow stem augers  
 2" split spoon

BORING NUMBER: SB 033  
 DATE STARTED: 5/19/94  
 DATE COMPLETED: 5/19/94  
 GROUNDWATER DEPTH: ~ 3'  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Time	Date	CPTL ppm MR/hr	COMMENTS
							Time	Date				
01		11				dr. brown-gray						
02		12	67%		Fill	Silt some sand (n-f) sand slag					100-	
03	1.5	21	(1.0)			(reddish, pebbles, chert) and rock frag. < 1/2" diam (moist)	0935	5/19/94			15-17	
04		21				dr. brown	Sand (n-f) some silt and rock					100-
05		9	47%		"	frag/slag mixed < 3/8" diam					100-	
06	3.0	5	(0.7)		"	(reddish) (V. damp)	0940	5/19/94			15-17	
07		3				dr. brown						
08		4	40%		"	(top) sand (n-f) some silt and slag (bot) 1" silt some sand (n-f)					100-	
09	4.5	11	(0.6)		"	and rock frag. < 1/2" diam (tan)	0945	5/19/94			15-17	
10		6				dr. brown						
11		4	40%			rock frag. (w/rock slabs) some sand (n-f) trace silt (sat)					100-	
12	6.0	7	(0.6)		SP		0950	5/19/94			15-16	
13		2										
14		2										
15	7.5	3	(NR)									
16		1				Brown & gray					100	
17		2	47%			clay some silt trace of sand (f)						
18	9.0	5	(0.7)		CL	(plastic) (sat)	1000	5/19/94			15	
19		1				Brown					100	
20		2	87%			clay some silt trace of sand (f)					15-	
21	10.5	3	(1.3)		CL	(plastic) (sat)	1030	5/19/94			16	
22		2				Brown					100	
23		3	47%			clay some silt trace of sand						
24	12.0	3	(0.7)		CL	(f) (plastic) (sat)	1035	5/19/94			15-16	
25		1				dr. brown						
26		2	67%			(top) clay some silt trace sand (f)					100	
27	13.5	2	(1.0)		CL	(bot) clay little silt (plastic) (sat)	1042	5/19/94			15-16	
28		1				(brown)						
29		1	100%			(top) silt some clay little rock frag < 1/4" diam (mid-bot) clay some silt					100	
30	15.0	2	(1.5)		CL	trace sand (f) (plastic)	1045	5/19/94			15-16	

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *D. Novotny*

BORING NUMBER: *58 233*  
 DATE STARTED: *5/19/94*  
 DATE COMPLETED: *5/19/94*  
 GROUNDWATER DEPTH: *~3'*  
 ELEVATION:

DRILLING/SAMPLING METHOD: *CME 45, 3 1/4" ID hollow stem augers  
 2" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HTG C/P# ppm & %/hr	COMMENTS
							Time	Date		
31	0	1	100%			<i>gray clay some silt grading into clay</i>			100	
32	1	2				<i>little sand (m-f) some silt trace</i>			15	
33	16.5	2	(1.5)		CL	<i>of clay (plastic) (sat)</i>	1055	5/19/94		
34	2	2				<i>brown sand (m-f) some silt little</i>			100	
35	3	3	67%			<i>rock frag. &lt; 1/2" diam. trace clay</i>			15	
36	18.0	8	(1.0)		SP	<i>(sat)</i>	1058	5/19/94		
37	7	5	67%			<i>brown sand (m) some gravel &lt; 1/2" diam</i>			100	
38	11	11				<i>(weathered shale) and silt</i>			15	
39	19.5	11	(1.0)		SP	<i>gray weathered shale (sat)</i>	1105	5/19/94		
40	10	21				<i>gray weathered shale</i>			100	
41	11	59/3	27%			<i>(sat)</i>				
42	26.0	12	(0.4)				1115	5/19/94	14	
43	13					T.O. @ 20.3 ft.				
44	14									
45	22.5	15								
46	16									
47	17									
48	24.0	18								
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									

NOTES:



PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, Md.*  
 GEOLOGIST: *B. Drossel*  
 DRILLER: *Doug Morotny (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Cavings*

BORING NUMBER: *SB 234*  
 DATE STARTED: *5/19/97*  
 DATE COMPLETED: *5/19/97*  
 GROUNDWATER DEPTH:  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRG-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Water CPM ppm NR/hr	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>dk brown silt some</i>				
	2					<i>sand (f-m) &amp; slag/gravel mix</i>				<i>Surf.</i>
	3					<i>1/2" diam (damp-sat)</i>				
	4				"	<i>Hard slag with brown</i>				<i>0-5'</i>
	5					<i>silt some clay trace of</i>				
	6				"	<i>sand (f) (plastic) (sat)</i>				<i>10-15'</i>
	7					<i>hard slag (7-9.5') with</i>				
	8					<i>brown silt some clay trace</i>				
	9				"	<i>of sand (f) (plastic) (sat)</i>				<i>15-19'</i>
	10					<i>Brown silt some sand (f)</i>				
	11				ML	<i>little clay (sat)</i>				
	12					<i>T.I.D. @ 19.0 ft.</i>				
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB-235  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/26/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/26/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS
							Time	Date		
	0					Fill SLAG, grey SLAG SAND, loose, sl. moist clayey @ 3.5 ft				
	5									
	6					Auger Refusal at 6ft.				
	10									

NOTES: - boring moved 3 ft west of original site after auger refusal @ 2.5 ft  
 - many auger teeth broken

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-236  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/19/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/19/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH: 10 ft  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID H.S. Augers / 2" OD split spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS				
							Time	Date						
1		5			Fill	GRAVEL, SLAG, grey/black SAND, some silt, dense, dry	9:07	5/19	400-500					
2		21	16						95-100					
3	1.5	13												
4		13			"	blk. SAND & SILT, clay, fly ash, dense, dry, green sand, grey gravel @ 3ft	9:08	5/19		400				
5		12	17	95-100										
6	3	17												
7		32	18		"	brown SAND & angular blk. GRAVEL, tr. silt, some green/yellow layers, moist, dense	9:10	5/19	—	strong odor of sulfur				
8		58												
9	4.5	37												
10		4	none		—	no sample, augers grinding on very hard material, probable fill/dog intrusion	9:11	5/19	—					
11		bounce												
12	6													
13		4	14		CL	lt. brown CLAY w/ tr. fine sand, stiff, med. plast., sl. moist	9:55	5/19	400					
14		6		12					CL		As Above w/ layer of dk. brown sand & silt, loose; CLAY became grey w/ depth	9:57	5/19	100-120
15	7.5	5												300
16		3	18	CL	grey/brown CLAY w/ some fine angular gravel & fine sand, low plasticity, loose, wet	10:07	5/19	250-300	∇ @ 10ft					
17		4						4		CL	br. CLAY & fine ang. GRAVEL w/ some sand, soft, cohesive-loose, saturated; last 0.2 ft - dk. grey	10:13	5/19	95-100
18	9	4												13
19		2	17	CL			5/19	95						
20		3						2	CL			5/19	250-300	
21	10.5	9											2	CL
22		2												
23		3												
24	12	3												
25		1												
26		1												
27	13.5	1												
28		1												
29		2												
30	15	2												

NOTES:

PAGE 1 OF 2

LOG OF BORING

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-236

DATE STARTED:  
 DATE COMPLETED:  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY 1/8" 200	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
31	15.4	1				As Above, lower plasticity w/depth, becoming very soft	10:27	5/19	250-300	
32		HW	14	CL						
33	16.5	1 ft								
34		2			CL	As Above, grading to fine SAND w/ some clay, grey/H. brown, saturated, loose	10:29	5/19	220	
35		1	18	SC						
36	18	2								
37		4			AL	mottled grey/brown/black CLAY, SAND & fine arg. GRAVEL; alluvial deposit, dense, sl. moist	10:42	5/19	100-300	
38		5	6	AL						
39	19.5	8								
40		4			AL	As Above, contacting grey SHALE, little weathered CLAY, hard, dry.	10:48	5/19	200-300	
41		50/4"	8	BR						
	21					Auger Refusal at 20.5 ft			75-85	

NOTES: AL - Alluvial Deposit  
 BR - Bedrock

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB-237  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/26/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/26/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 1/2"	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					ferromolybdenum slag/slag sand, loose, dry @ 4 ft - becomes clayey @ 5 ft - becomes wet  F.I.I.				
	5									
	9.5									
	10									
	15									
	19				CL	brown CLAY w/ fine sand & silt; no cuttings returned  @ 19-22 ft - sandy & saturated; stiffer drillings  SP				
	20									
	22									
	25									
	25					Auger Refusal at 22 ft				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-238  
 DATE STARTED: 5/26/94  
 DATE COMPLETED: 5/26/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY 12"	PRO. FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Fill grey med. slag sand, ferromolybdenum slag; loose, dry @ 3ft - becoming wet @ 5.5 ft - becoming clayey scratch at 7-7.5 ft				
	5									
	9.5									
	10					CL grey/brown CLAY w/ decreasing sand w/ depth, decreasing plasticity w/ depth, sl. moist, soft @ 19ft - stiffer drilling				
	15									
	20									
	20.4					Auger Refusal at 20.4ft				
	25									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Teria Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 239*  
 DATE STARTED: *6/2/94*  
 DATE COMPLETED: *6/5/94*  
 GROUNDWATER DEPTH: *~8'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		COUNTS CPM ppm NR/hr	COMMENTS
							Time	Date		
	0									
	1					<i>dk brown silt some slag</i>			160	<i>swt.</i>
	2				<i>Fill</i>	<i>gravel mixed w/ 3" diam little</i>			30	
	3					<i>sand (s) (hard material)</i>			180-	
	4					<i>(1.5-10.5') (clay-silt)</i>			160	
	5								40	
	6									
	7				<i>ML</i>	<i>brown silt some clay little</i>				
	8					<i>sand (s) (silt)</i>				
	9									
	10				<i>CL</i>	<i>brown clay some silt</i>				
	11					<i>trace of sand (s) (silt)</i>				
	12									
	13				<i>CL</i>	<i>gray clay some silt (silt)</i>				
	14									
	15				<i>ML</i>	<i>gray silt little sand (s)</i>				
	16					<i>trace of clay (silt)</i>				
	17									
	18					<i>auger refusal at 22 ft.</i>				
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-240  
 DATE STARTED: 5/20/94  
 DATE COMPLETED: 5/20/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					brown med. SAND, grey vitrified slag, loose, dry-sl. moist, tough drilling Softer drilling @ 8 ft.				
	5									
	8									
	10				grey CLAY stiffer drilling @ 19.5 ft					
	15									
	20				Auger Refusal at 22.2 ft					
	22.2									
	25									

NOTES: - No Cuttings



LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5830.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Norotny (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 242*  
 DATE STARTED: *5/31/94*  
 DATE COMPLETED: *5/31/94*  
 GROUNDWATER DEPTH: *~6'*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		LABORATORY	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>silt some sand (F) +</i>			100-110 155 180-160 30	<i>Soil</i>    <i>5-10'</i>
	2					<i>slag/gravel etc &lt; 1/2" dia</i>				
	3					<i>(red clay) hard clay (2-14')</i>				
	4					<i>dark brown (moist-sat)</i>				
	5					<i>black top (0-0.5')</i>				
	6									
	7									
	8				ML	<i>Brn &amp; grey - alternating</i>				
	9					<i>sequences of silt some</i>				
	10					<i>sand (soft) trace of clay and</i>				
	11					<i>rock fragments &lt; 1/4" dia.</i>				
	12									
	13				CL	<i>clay some silt trace of</i>				
	14					<i>sand (F) (plastic)</i>				
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22					<i>Auger refusal - 24B</i>				
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, MA.*  
 GEOLOGIST: *B. Dressel*

BORING NUMBER: *SB 293*

DATE STARTED: *5/31/94*  
 DATE COMPLETED: *5/31/94*  
 GROUNDWATER DEPTH: *~6-7'*  
 - ELEVATION:

DRILLER: *Doug Norrany (Terra Teaming)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		WATER CPM ppm W/LR	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>silt some sand (s) +</i>			<i>120-</i>	<i>surf</i>
	2					<i>slag/gravel etc &lt; 1/2" dia</i>			<i>110</i>	
	3					<i>dark brown (reddish, phthal)</i>			<i>16-16.5</i>	
	4					<i>hard material (&lt; 3.5-6.5')</i>			<i>100</i>	<i>0-5</i>
	5					<i>hard material (wood?) (0.5-1.5')</i>			<i>13.5-14</i>	
	6					<i>(moist - sat)</i>			<i>140</i>	<i>5-10'</i>
	7								<i>16.5</i>	
	8				ML	<i>Brwn + gray alternating</i>				
	9					<i>sequences of silt some</i>				
	10					<i>sand (surf) trace of clay and</i>				
	11					<i>rock fragments &lt; 1/2" dia</i>				
	12					<i>and.</i>				
	13				CL	<i>clay some silt trace of</i>				
	14					<i>sand (s) (plastic)</i>				
	15									
	16									
	17									
	18									
	19					<i>Auger refusal - 18.5</i>				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 244*  
 DATE STARTED: *5/27/94*  
 DATE COMPLETED: *5/27/94*  
 GROUNDWATER DEPTH: *~3'*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Pore Pressure (psf)	COMMENTS
							Time	Date		
0										
1					Fill	<i>brown sand (m-f) some</i>			140	<i>Swf</i>
2				<i>silt and slag/gravel mix</i>				120		
3				<i>1" dia (moist)</i>				20		
4										
5					Fill	<i>brown silt some sand (f)</i>			120	<i>5-10'</i>
6						<i>and slag/gravel mix</i>			20	
7						<i>1/2" dia trace of clay</i>			20	
8						<i>(damp-sat)</i>			20	
9					ML				100-	<i>10-15'</i>
10						<i>alternating sequences</i>			120	
11						<i>of brown silt some</i>			20	
12						<i>clay little sand (f) (plastic)</i>				
13						<i>(sat) &amp;</i>				
14					CL	<i>clay some silt trace</i>				
15						<i>of sand (f) (sat)</i>				
16										
17										
18						<i>Auger refusal - 19.8</i>				
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

NOTES:

**LOG OF BORING**

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 4 1/4" ID Auger

BORING NUMBER: SB-245  
 DATE STARTED: 5/18/94  
 DATE COMPLETED: 5/18/94  
 GROUNDWATER DEPTH: 8 ft.  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 124"	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	4.5				Fill	GRAVEL, slag/slag sand, loose, sl. moist; grind on vitrified slag @ 1.5 ft; grey SAND + GRAVEL @ 2ft (ferroboron slag)				
	6					brown red SAND & SILT, wet, loose				
	12				CL	CLAY w/ some sand & silt, low-med. plasticity, soft, saturated;				Y @ 8 ft
	15					CLAY becomes mottled grey/brown @ 14 ft.				
	20					stiff @ 18.5 ft				
	21.8									
	25					Auger Refusal at 21.8 ft				

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 4 1/4" ID Auger	BORING NUMBER: SB-246 DATE STARTED: 5/18/94 DATE COMPLETED: 5/18/94 GROUNDWATER DEPTH: 8 ft ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	5				Fill	GRAVEL, dk. brown slag/slag sand; vitrified slag @ 4-5 ft				
	10				Fill	grey/brown CLAY w/ fine sand, soft, low plasticity, moist-wet; wood @ 7-7.5 ft; becomes stiffer @ 17 ft.				V @ 8 ft
	15				CL					
	20									
	21.1									
	25					Auger Refusal at 21.1 ft				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-247  
 DATE STARTED: 5/26/94  
 DATE COMPLETED: 5/26/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS	
							Time	Date			
	0					GRAVEL, black slag/slag sand, loose, sl. moist. @ 2.5 ft - red brick @ 3.5-5 ft - hard slag, wood @ 9 ft - wet CL @ 12 ft - v. soft					
	5										
	10										
	12										
	15				CL		grey/brown CLAY w/ tr. fine sand, low-med. plasticity, moist @ 19.9 ft - stiffer drilling				
	20										
	22.3										
	25							Auger Refusal at 22.3 ft			

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID Auger	BORING NUMBER: SB-248 (MW-22) DATE STARTED: 5/26/94 DATE COMPLETED: 5/26/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY 12"	PRO. FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS	
							Time	Date			
	0					GRAVEL, grey SAND, slag; hard @ 3ft, loose; dry-moist; out of slag @ 4.5ft; brown, clayey w/ sand below, grind at 10ft; wet @ 8ft					
	5										
	10	10.5									
	15				CL		CLAY, soft, dk. grey w/ some fine sand & silt, low plasticity, sl. moist; @ 19.5 ft - stiffer drilling.				
	20										
	25										
	25										
							Auger Refusal at 22.2 ft				

NOTES: - hole adjusted 4 ft East due to overhead power lines

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-249  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/19/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/19/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH: 8 ft  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID H.S. Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					FILL: med. grey sand, angular gravel, w-sorted @ 1-2 ft., all loose sl. moist-dry; wood, dk. grey SAND, SILT & clay below 4ft. Drilling cases @ 8ft				7 @ 8 ft
	5				Fill					
	10									
	11.5									
	15				CL		dk. grey CLAY & SAND, low-med. plasticity (w/ detn), color change to dk. brown, all saturated			
	20				SP					
	25					Auger Refusal at 22 ft				

NOTES: - hole moved ~ 8 ft East to avoid overhead powerlines.



LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-250  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/25/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/25/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD Split Spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1		4				grey CLAY & SLAG/SLAG SAND, dense, dry	8:22	8/25	200-800	
2		8			Fill				170	
3	1.5	15	14						8500	
4		17			"	As Above	8:23	8/25	130-135	
5		9			"					
6	3	10	15			2500				
7		11			"	As Above, grading to black SAND	8:26	8/25	100	
8		16			CL	& CLAY w/ silt (layers); dense				
9	4.5	21	18			fine sand, hard clay, all dry				
10		12			Fill	As Above, contacting grey SAND, wet, w-sorted, fine,	8:28	8/25	3500	2 Rad
11		9			SP	loose-med. dense				
12	6	7	10			100				
13		4				As Above, contacting 10" mottled H. grey/grey/brown CLAY & fine SAND, dense-hard, dry	8:40	8/25	3500-4000	
14		10			CL (fri)					
15	7.5	23	16			100				
16		13				As Above, some brown fire brick, friable, dense, dry	8:42	8/25	350-380	2 Rad
17		50/4"			Fill					
18	9		8			100				
19		7				wet, brown, SAND; friable, hard CLAY; wood; wet white SANDY CLAY	8:53	8/25	350	2 Rad
20		21			"					
21	10.5	23	10			95-100				
22		3				white CLAY then grey; soft, low plasticity, sl. moist, some fine sand & silt	8:55	8/25	340	
23		2			CL					
24	12	2	15			95				
25		3				grey/brown CLAY w/ some fine sand, soft, med. plasticity, sl. moist	9:20	8/25	350	1 Rad
26		4			CL					
27	13.5	3	6			110				
28		2				As Above w/ (fine, angular) gravelly clay layer, wet, non-cohesive	9:23	8/25	300	
29		3			CL					
30	15	3	16			100				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: **SB-250**

DATE STARTED:  
 DATE COMPLETED:  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
31	15	WR/1				fine brown SAND w/ some clay, soft, wet	9:30	8/25	300	1 Rad (Top)
32									100	
33	16.5		6							
34		WR/1				brown/tan SAND & CLAY, saturated, v. soft - 8" grey/brown mottled fine SAND, w-sorted, loose, wet	9:34	8/25	300	
35									100	
36	18		18							
37		2				orange/brown coarse SAND w/ fr. fine angular gravel, loose, wet	9:41	8/25	300	1 Rad
38		2							90	
39	19.5	3	7							
40		3				As Above, more gravel, saturated	9:45	8/25	250	
41		3							90	
42	21	4	18							
43		4				As Above, contacting 12" grey weathered SHALE, SANDSTONE, & hard, dry CLAY	9:58	8/25	250	
44		9							90	
	22.5	50/13"	16							
						Total Depth @ 22.3 ft				

NOTES: BR - Bedrock

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*

BORING NUMBER: *SB 251*

DATE STARTED: *5/31/94*  
 DATE COMPLETED: *5/31/94*  
 GROUNDWATER DEPTH: *~5'*  
 - ELEVATION:

DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Casings*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Water CPM ppm N/A/N	COMMENTS
							Time	Date		
	0									
	1									
	2				Fill	<i>Blacktop (0-0.5') gray</i>			<i>120-100</i>	<i>5-6'</i>
	3			<i>sand (m-f) some silt and</i>				<i>21-18</i>		
	4			<i>slag/gravel min 1/2" diam</i>				<i>140-130</i>		
	5			<i>(moist)</i>				<i>19-20</i>		
	6				Fill	<i>brown sand (m-f) some</i>			<i>100</i>	<i>10-15'</i>
	7			<i>silt little slag/gravel</i>				<i>16-17</i>		
	8			<i>mixed &lt; 3/4" diam (red dog)</i>						
	9			<i>hard slag encountered</i>				<i>150</i>		
	10							<i>155-16</i>	<i>15-20'</i>	
	11									
	12				ML	<i>brown and gray alternating</i>				
	13			<i>sequence of silt</i>						
	14				CL	<i>some sand (f) trace of</i>				
	15			<i>clay and rock frag.</i>						
	16			<i>&lt; 1/4" diam (sat)</i>						
	17			<i>and</i>						
	18					<i>clay zone silt trace of</i>				
	19					<i>sand (f) (plastic) (sat)</i>				
	20									
	21									
	22					<i>Auger refusal - 20.0</i>				
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

PROJECT: Molycorp, Inc.

BORING NUMBER: SB 252

PROJECT NO: 5330.001

DATE STARTED: 5/31/94

LOCATION: Washington Pa.

DATE COMPLETED: 5/31/94

GEOLOGIST: B. Dressel

GROUNDWATER DEPTH: ~ 6.5'

DRILLER: D. Novak

ELEVATION:

DRILLING/SAMPLING METHOD: CME 45, 3 1/4" ID hollow stem augers  
2" split spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME CPT # NR/M	COMMENTS
							Time	Date		
01	0	3								
02	0.5	3	53%		Fill	silt some sand(f) and slag/			100	
03	1.5	4	(0.0)			gravel mix (reddish) < 1/2" diam. (moist) (dk brown)	0755	5/31/94	19	
04	2	5								
05	2.5	13	80%		"	silt some sand(f) and slag/			100	
06	3.0	20	(1.2)			gravel mix < 3/4" diam. (reddish glass) (moist) (dk brown)	0800	5/31/94	19	
07	3.5	20								
08	4.0	19	100%		"	silt some slag/gravel mixed < 1/2" diam. (reddish) some sand(f)			120-130	
09	4.5	17	(1.5)			(moist-damp) (dk brown)	0805	5/31/94	18.5-19	
10	5.0	32	80%		"	silt some slag/gravel mix < 1/2" diam. (reddish) and sand(f), slag			200	
11	5.5	20								
12	6.0	15	(1.2)			sand mix or (br) (moist-damp) (dk brown)	0810	5/31/94	19-20	
13	6.5	5								
14	7.0	2								
15	7.5	3	(NR)							
16	8.0	54	67%		"	(top) 6" (reddish) (light brown) (br)			100	
17	8.5	46								
18	9.0	39	(1.0)			6" slag/gravel mix < 1/2" diam. (silt + sand(f)) (dk brown) (sat)	0820	5/31/94	17	
19	9.5	15								
20	10.0	6	20%			silt some sand(f) trace gravel < 1/4" (dk brown-gray)			120	
21	10.5	4	(0.3)		ML	(sat)	0825	5/31/94	18-19	
22	11.0	2								
23	11.5	3								
24	12.0	2	(NR)							
25	12.5	3	80%			clay some silt trace of sand			100	
26	13.0	4				(f) (plastic) (sat) (gray) br				
27	13.5	5	(1.2)		CL	portion (brown)	0835	5/31/94	17	
28	14.0	4	33%			clay some silt trace of			100	
29	14.5	5				sand(f) (plastic) (brown & gray)				
30	15.0	6	(0.5)		CL	(sat)	0840	5/31/94	17	

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *D. Novotny*

BORING NUMBER: *SB 252*  
 DATE STARTED: *5/31/94*  
 DATE COMPLETED: *5/31/94*  
 GROUNDWATER DEPTH: *~6.5*  
 ELEVATION:

DRILLING/SAMPLING METHOD: *CME 45, 3 1/4" ID hollow stem augers  
 2" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMS CPM ppm $\pm$ 4%	COMMENTS
							Time	Date		
31		5				(top) gray clay some silt trace of sand (f)			100-110	
32		4	67%			(blow) (top) silt some clay trace of sand (f) (sat) (plastic)			100-110	
33	16.5	16	(1.0)		CL		0846	5/31/94	16-17	
34		2				Silt some clay and sand (f)			100	
35		2	67%			(light brown & rust) (sat)			100	
36	18.0	3	(1.0)		ML		0900	5/31/94	16	
37		WR				(brown & gray) (top) silt some clay & sand (f)			100	
38		1	67%			(bot) silt some sand (f) little clay			100	
39	19.5	3	(1.0)		ML	(brown & gray) (sat)	0915	5/31/94	16	
40	10	25				Silt some sand (f-a) trace of			100	
41	11	59	40%			rock frag $\leq$ 1/8" bot tip			100	
42	26.0	12	(0.6)		ML	gray weathered shale	0930	5/31/94	16	
43	13					T.D. @ 20.1 ft				
44	14									
45	22.5	15								
46	16									
47	17									
48	24.0	18								
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, Md.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Cuttings*

BORING NUMBER: *SB 253*  
 DATE STARTED: *5/18/94*  
 DATE COMPLETED: *5/18/94*  
 GROUNDWATER DEPTH: *~6.0*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRG-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HTG C/PN ppm U/N	COMMENTS
							Time	Date		
	0									
	1				Fill	brown sand (a-c) (brush sand)			160-	surface
	2					some silt (moist)			200	
	3				"	brown silt some sand (p) and			45	
	4					slag < 1/2" diam (moist)			350	0-5'
	5					hard slag - 2-3'			60	
	6				SP	brown sand (w-f) some silt			250-	
	7					little clay trace rock frag/obj			300	10-15'
	8					mix < 1/2" diam (v. damp-sat)			40-60	
	9					gray sand (f) some rock frag			150-	
	10				SP	< 3/8" diam. little silt & clay			200	15-20'
	11					(s. plastic which increases			35-	
	12					with depth) (color darker with			60	
	13					depth) (sat)				
	14				-					
	15				MZ	Brown silt some clay and				
	16					rock frag. < 1/2" diam (sat)				
	17									
	18					No return of auger cuttings				
	19					harder drill log				
	20									
	21					Auger refusal - 20'				
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-254  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/18/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/18/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH: 8 ft  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 4 1/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY 12"	PRO. FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS
							Time	Date		
	0					FILL; gravel, brown med. sand & silt, moist-wet				
	4.5				SM	brown med SAND & SILT, cohesive, soft, wet; little rock fragments @ 7 ft				γ @ 8 ft
	10				CL	brown CLAY w/ some sand, wet, low plasticity, soft; plasticity increases w/ depth; @ 18.5 ft; becomes stiff, mottled gray/brown some sand & silt				
	20					Auger Refusal at 20.1 ft.				

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB-255  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/18/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/18/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH: 8ft  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 4 3/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM sR/h	COMMENTS
							Time	Date		
	0					GRAVEL; grey sand/slag; red dog, loose, dry; some silt @ 3-4 ft				
	4				Fill					
	5				Fill	grey CLAY w/ some silt & fine sand, V. soft, low plasticity, moist;				∇ @ 8ft - water returning w/ cuttings
	10				CL	@ 8 ft: stiffer drilling, non-cohesive, moist, (Black Fly ash-?)				
	15				CL	@ 19.5 ft: stiffens, brown/orange CLAY w/ fine angular gravel & some fine sand, wet				
	20									
	21.7					Auger Refusal at 21.7 ft				
	25									

NOTES: - Hole shifted to avoid underground pipe



### LOG OF BORING

<b>PROJECT:</b> MolyCorp, Inc. <b>PROJECT NO:</b> 5330 -- 00001 <b>LOCATION:</b> Washington, PA <b>GEOLOGIST:</b> P. Anderson <b>DRILLER:</b> R. Lawrence <b>DRILLING/SAMPLING METHOD:</b> 3 1/4" ID H.S. Augers	<b>BORING NUMBER:</b> SB-256 <b>DATE STARTED:</b> 5/19/94 <b>DATE COMPLETED:</b> 5/19/94 <b>GROUNDWATER DEPTH:</b> <b>ELEVATION:</b>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124"			GRAVEL, black slag/slag sand, loose, moist, tr. yellow brick.				
	5				Fill	@ 6 ft: brown SAND, wet @ 6.5 ft: hard, w/ ferrobrown slag/sand, increasing silt w/ depth				
	10									
	11									
	15				CL	dk. grey CLAY & SAND, v. soft, easier drilling, low plasticity, wet				
	19.5				CL	@ 19.5 ft: lt. brown/grey CLAY w/ little fine angular gravel, low plasticity, soft-med stiff, drilling stiffer; little return of cuttings				
	20									
	21.7									
	25					Auger Refusal at 21.7ft				

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID Auger	BORING NUMBER: JB-257 DATE STARTED: 5/25/94 DATE COMPLETED: 5/25/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					GRAVEL, brick; slag/slag sand, loose, dry				
	5				Fill	@ 3 ft - wood, slag (old RR line?)				
	8.5					@ 7 ft - easier drilling				
						@ 8.5 ft - metallic grey SLAG/SAND; wet				
	10				CL	grey CLAY, soft, low plasticity, moist;				
	15					some silt & fine sand; med. plastic; less silt & sand w/ depth;				
	20				AL	@ 17 ft - color change to mottled lt. brown				
	20.5					@ 20.5 - drilling stiffer				
	25				SP	brown fine SAND w/ some fine angular gravel & tr. clay, saturated, loose				
						Auger Refusal at 25 ft				

NOTES: AL - alluvial deposit

LOG OF BORING

<p>PROJECT: Molycorp, Inc.          PROJECT NO: 5330 -- 00001          LOCATION: Washington, PA          GEOLOGIST: P. Anderson          DRILLER: B. Lawrence          DRILLING/SAMPLING METHOD: 3 1/4" ID Auger</p>	<p>BORING NUMBER: SB-258          DATE STARTED: 5/25/94          DATE COMPLETED: 5/25/94          GROUNDWATER DEPTH:          ELEVATION:</p>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY 12"	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					GRAVEL, gray slag; med-fine gray SAND, loose/dry @ 7 ft - wet SILTY CLAY @ 8.5 ft - soft drilling @ 9.5 ft - stiffer @ 11 ft - soft  CL grey CLAY w/ some sand, low plasticity, little auger return @ 19 ft - color change to lt. brown/grey @ 21.5 ft - stiffer drilling  Auger Refusal at 22.5 ft.				
	5									
	10									
	11									
	15									
	20									
	22.5									
	25									

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB-259  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/31/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/31/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH: 13 ft  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					SLAG; GRAVEL fill				
	5				Fill	soft drilling @ 13.5 ft				7 @ 13 ft
	10									
	13.5									
	15				CL	grey CLAY w/ some silt & fine sand, soft, low plasticity (increasing w/ depth);				
	20				SC	@ 21.5 ft - stiffening, color change to brown increasing sand & moisture w/ depth				
	23.1					Auger Refusal at 23.1 ft				
	25									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: 9B-260

DATE STARTED: 6/14/94

DATE COMPLETED: 6/14/94

GROUNDWATER DEPTH:

ELEVATION:

3 1/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMB PND Sum Wt/Hr	COMMENTS
							Time	Date		
01	0.5	WOH				UPPER 4" gravel and debris			0.005	AT SURFACE
02	1	3			FILL	contacting yellow brown to black slag, dry to sl. moist	1622	6/14/94	40	20% O <sub>2</sub> 0% LEL
03	1.5	2	9.5"							
04	2	2			FILL	UPPER 6" WHITE TO GREY SLAG, WEATHERED, V. LOOSE, SL. MOIST CONTACTING BLACK GRANULAR SLAG, V. LOOSE, SL. MOIST	1623	6/14/94	40	
05	2.5	3	10"							
06	3	3								
07	3.5	2			FILL	RUST, GREY, YELLOW AND GREEN SAND SIZED SLAG, VERY WEATHERED, V. LOOSE, SL. MOIST.	1626	6/14/94	200	
08	4	2	14"							
09	4.5	39								
10	5	24			FILL	GREY AND YELLOW BROWN SANDY SIZED SLAG, MED. DENSE, SL. MOIST	1635	6/14/94	150	20.5% O <sub>2</sub> 0% LEL
11	5.5	22								
12	6	14	12"							
13	6.5	10			FILL	YELLOW BROWN SANDY SLAG AS ABOVE, SL. MOIST, CONTACTING 3" THORIUM SLAG, MED. DENSE, SL. MOIST.	1651	6/14/94	150	
14	7	14	16"							
15	7.5	38								
16	8	16			FILL	THORIUM? SLAG AS ABOVE, SL. MOIST, AMMONIA ODR.	1655	6/14/94	390	20% O <sub>2</sub> 0% LEL
17	8.5	18 6/5	16"							
18	9									
19	9.5	50/3	35"		FILL	SLAG AS ABOVE, BECOMES VERY HARD, SL. MOIST, AMMONIA ODR.	1721	6/14/94	320	
20	10									
21	10.5									
22	11	14			FILL	THORIUM SLAG? LOOSELY CONTACTING BROWN AND YELLOW BROWN SLAG	1730	6/14/94	200	20.5% O <sub>2</sub> 0% LEL
23	11.5	16	18"			W. BLACK SLAG @ 11.5 ft				
24	12	32								
25	12.5	23			FILL	BLACK VITRIFIED SLAG, LOOSE TO MED. DENSE, WET	1750	6/14/94	200	
26	13	6	8"							
27	13.5	4								
28	14	3			FILL	5" YELLOW BROWN CLAY WITH SILT AND SLAG FRAGMENTS	1755	6/14/94	23	20.3% O <sub>2</sub> 0% LEL
29	14.5	4	8"			SOFT MED. PLAST, SL. MOIST CONTACTING GREY BLUE SLAG MED. DENSE, MOIST.				
30	15	20								

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-260 (cont'd)  
 DATE STARTED: 6/14/94  
 DATE COMPLETED: 6/14/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3 1/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME EAD PART WE/AC	COMMENTS
							Time	Date		
31	15.0	007.3	9.5"				1802	6/14/94	'9	
	2					BOTTOM OF BORING @ 15.3 BLACK VITRIFIED SLAG CONTACTING GRAVEL MIX CONCRETE, MOIST.				
	16.5									
	18									
	19.5									
	21									
	22.5									
	24									
	25.5									
	27									
	28.5									
	30									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID Auger	BORING NUMBER: SB262 DATE STARTED: 5/27/94 DATE COMPLETED: 5/27/94 GROUNDWATER DEPTH: 10 ft ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS
							Time	Date		
	0					0.5 ft concrete, grey SLAG/SLAG SAND, loose, sl. moist				
	5				Fill	@ 3ft - grey w-sorted SAND				
	10				CL	@ 7ft - orange CLAY w/ tr. sand, v. soft, low plasticity; grading to brown, sandy				
	15				CL	@ 10ft - color change to grey, moist				▽ at 10 ft.
						grey soft CLAY w/ silt & tr. sand, low plasticity				
						Auger Refusal at 15.3ft (probably concrete)				

NOTES:

LOG OF BORING

<p>PROJECT: MolyCorp, Inc.          PROJECT NO: 5330 -- 00001          LOCATION: Washington, PA          GEOLOGIST: P. Anderson          DRILLER: B. Lawrence          DRILLING/SAMPLING METHOD: 3 1/4" ID Auger</p>	<p>BORING NUMBER: SB 263          DATE STARTED: 5/27/94          DATE COMPLETED: 5/27/94          GROUNDWATER DEPTH: 9 ft          ELEVATION:</p>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0				Fill	damp. grey SLAG				
	2									
	5				SC CL	orange SANDY CLAY, med-low plasticity, v. moist-wet; softer @ 7.2 ft. color change to grey/dk. grey @ 8 ft				γ @ 9 ft
	10									
	14.7									
	15				CL	grey & brown CLAY & SILT, wet, some fine sand & gravel, low plasticity				
	20					@ 21.6 ft - stiffer drilling				
	22.1					dec grey clayish, moist				
	25					Auger Refusal at 22.1 ft				

NOTES:



### LOG OF BORING

<p>PROJECT: MolyCorp, Inc.          PROJECT NO: 5330 -- 00001          LOCATION: Washington, PA          GEOLOGIST: P. Anderson          DRILLER: B. Lawrence.          DRILLING/SAMPLING METHOD: 3 1/4" ID Auger</p>	<p>BORING NUMBER: SB-264          DATE STARTED: 5/27/94          DATE COMPLETED: 5/27/94          GROUNDWATER DEPTH:          ELEVATION:</p>
---	--

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM aR/h	COMMENTS
							Time	Date		
	0		12"			0.4 ft concrete; black SLAG/SLAG SAND, loose, sl. moist.				
	5				Fill	@ 4 ft - wet, drier w/ depth				
	10	10				@ 8 ft - oil saturated sand				
	15				CL	grey CLAY w/ fine sand, wet, v. soft, low plasticity				
	20					@ 21.5 ft - color change to brown, med. plasticity, stiffer				
	21.5				SP	saturated brown SAND				
	22.5					Auger Refusal at 22.5 ft				
	25									

NOTES:

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330.001  
 LOCATION: Washington Pa.  
 GEOLOGIST: B. Dressel  
 DRILLER: D. Novotny

BORING NUMBER: SB 265  
 DATE STARTED: 5/26/94  
 DATE COMPLETED: 5/26/94  
 GROUNDWATER DEPTH: ~8'  
 ELEVATION:

DRILLING/SAMPLING METHOD: CME 45, 3 1/4" ID hollow stem augers  
 2" split spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME CPTM per MR/hr	COMMENTS
							Time	Date		
01		15				gray silt some sand (f) + sh + gravel				
02		25	87%		Fill	mixed (mid) silt some sand/slag				850
03	1.5	77	(1.3)			frag. tip gray slag < 1" diam. (moist)	830	5/26/94		60
04		50/2								
05										
06	3.0		(NR)							
07		13				gray brown sh + gravel mix < 1/2" diam. (reddish)				850
08		16	80%		"	Sandstone pieces med. grain < 1" diam. (tip wood) (moist) (wood)	840	5/26/94		55-60
09	4.5	15	(1.2)			(dtk brown) silt some sand (f) + slag				200
10		10				gravel mix < 1/2" (bas) yellow				
11		11	67%		"	reddish (limbick) (moist)	845	5/26/94		50
12	6.0	12	(1.0)			dtk brown silt some sand (f) (mid) silt				200-250
13		13	67%		"	some clay trace sand (f) (bas) silt				
14		14				some slag (reddish) sand (f) + frags	850	5/26/94		50
15	7.5	19	(1.0)			(top) silt some slag/gravel mix lim				200
16		15				sand (mid) weathered shale				
17		17	53%		"	(damp-sat) (dtk brown)	855	5/26/94		50
18	9.0	18	(0.8)			(top) weathered shale (mid) silt lim				200
19		19	100%		"	sand (f) slag some silt tip has				50-55
20		20				white clay material (weathered Xsat)	900	5/26/94		55
21	10.5	21	(1.5)			weathered white material silt				250
22		22				has dtk brown clay some				
23		23	67%		"	silt (sat) (white)	905	5/26/94		60
24	12.0	24	(1.0)			Tip has white material silt some				180-200
25		25	67%			clay trace of sand (f) (sat)				
26		26				(dtk brown)	910	5/26/94		50
27	13.5	27	(1.0)		CL	clay some silt trace of				160
28		28	87%			sand (f) (plastic) (sat)				
29		29				(brown + gray)	915	5/26/94		50
30	15.0	30	(1.3)		CL					

NOTES:

LOG OF BORING

PROJECT: *MolyCorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *D. Novakny*

BORING NUMBER: *SB 265*  
 DATE STARTED: *5/26/94*  
 DATE COMPLETED: *5/26/94*  
 GROUNDWATER DEPTH: *~8'*  
 ELEVATION:

DRILLING/SAMPLING METHOD: *CME 45, 3 1/4" ID hollow stem augers  
 2" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMM CPM ppm +/-	COMMENTS
							Time	Date		
31		2								
32		4	67%			Silt some clay trace of sand (f) plastic (silt) (brown + gray)			200	
33	16.5	5	(1.0)		ML	1st brown plastic	920	5/26/94	50	
34		3				Top. silt some clay trace sand (f)			200	
35		5	67%			Mid silt little sand (f) (bot) silt				
36	18.0	5	(1.0)		ML	some sand (f) + rock frag < 1/2" (silt)	925	5/26/94	50	
37		2				Silt some sand (m-f) + rock			170	
38		3	87%			frag < 1/2" diam (alluvium)				
39	19.5	3	(1.3)		ML	(silt)	930	5/26/94	45	
40		3				1st brown				
41		4	35%			4" silt some sand (m-f) + rock frag			170-200	
42	21.0	6	(0.7)		SP	1/2" dia alluvium (bot) clay some			45-	
43		WR				silt trace sand (f) plastic (silt)	935	5/26/94	50	
44		15	100%			Top 1/2" gray clay some silt (silt)			200	
45	22.5	39	(1.5)		SP	Sand (m) some rock frag < 1/2" (weathered shale) (bot) sandstone -> sandy shale	940	5/26/94	55-60	
46		59/2	13%			weathered shale (sandy)				
47		17				(gray)				
48	24.0	18	(0.2)				945	5/26/94		
	19					auger refusal at 22.7 ft.				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, MA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terin Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 266*  
 DATE STARTED: *5/26/94*  
 DATE COMPLETED: *5/26/94*  
 GROUNDWATER DEPTH: *~ 7.8'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM SPM APR	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>brown sand/clay some</i>			<i>450-</i>	<i>Suit.</i>
	2			<i>slag/gravel mixed &lt; 3/4" diam</i>				<i>350</i>		
	3			<i>little silt (moist)</i>				<i>110-100</i>		
	4				SM	<i>blue-gray sand/clay some</i>			<i>300</i>	<i>0-5'</i>
	5			<i>silt little slag/rock frag.</i>				<i>112</i>		
	6			<i>mixed &lt; 1/2" diam.</i>				<i>200-</i>		
	7			<i>(fill) harder material (2-3.5) (wood?)</i>				<i>240</i>		
	8							<i>60</i>	<i>5-9'</i>	
	9					<i>harder material (20) saw not</i>				
	10					<i>penetrate it. (sat)</i>				
	11									
	12									
	13					<i>Auger refusal at - 20'</i>				
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

<p>PROJECT: MolyCorp, Inc.          PROJECT NO: 5330 -- 00001          LOCATION: Washington, PA          GEOLOGIST: P. Anderson          DRILLER: B. Lawrence          DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD split spoon</p>	<p>BORING NUMBER: 5B267          DATE STARTED: 5/31/94          DATE COMPLETED: 5/31/94          GROUNDWATER DEPTH:          ELEVATION:</p>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1						0.5 ft. concrete then rd. gravel subbase & blk. SLAG			400	2 Rad
2					Fill	SLAG SAND, loose, sl. moist	8:20	5/31	100-110	
3	1.5									
4		6			"	FILL: grey SAND, brown CLAY w/ some silt & black slag;			100	
5		9			"	loose-hard, dense, dry-sl. moist	8:33	5/31	12	
6	3	21	16							
7		50/1"			"	FILL & Wood				1 Rad (top)
8			1		"		8:36	5/31	-	
9	4.5									
10		19			"	SLAG/SLAG SAND, dark brown/grey as above; 0.4 ft glass, fire brick, tan/orange SAND;			120	2 Rad
11		50/3"			"	0.2 ft solid slag	9:00	5/31	15	
12	6		14							
13		10			"	SLAG/SLAG SAND, metallic black, ferromolybdenum, dense, wet-moist			100-120	2 Rad
14		35			"		9:35	5/31	16.5	
15	7.5	4	8							
16		16			"	3" recovery as above	9:38	5/31	-	1 Rad
17		50/3"								
	9					Total depth @ 8.3 ft				

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB268  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 5/31/94  
 LOCATION: Washington, PA DATE COMPLETED: 5/31/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					0.2 ft Asphalt; 0.7 ft concrete, blk. SLAG/SLAG SAND, loose, sl. moist, ferromagnesian; dark grey slag/SLAG SAND; stiff drilling @ 6 ft easier drilling @ 8 ft				
	5				Fill					
	8									
	10				CL	brown CLAY w/ some silt, tr. fine sand, soft, low plasticity, sl. moist.				
	15					@ 17.3 ft - stiff brown CLAY & SHALE fragments - stiffer drilling				
	20	20.1				Auger Refusal @ 20.1 ft				
	25									

NOTES:

PAGE 1 OF

LOG OF BORING

PROJECT: Molycorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID Auger	BORING NUMBER: SB269 DATE STARTED: 5/27/94 DATE COMPLETED: 5/27/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					0.4 ft concrete, SLAG, GRAVEL, grey SAND; dk. grey ferromolybdenum @ 2 ft; dk. grey SAND w/ some silt & fine sub-angular gravel, med. dense, sl. moist;				oil stained @ 2-3 ft & @ 9-10 ft
	5				Fill SP					
	8.2									
	10					soft drilling; SAND, wet, oil stained, strong odor				
	13.5									
	15					brown CLAY w/ some silt, med. plasticity, soft, sl. moist, some grey				
	20					Stiffer drilling @ 20 ft.				
	21.4					Auger Refusal at 21.4 ft				
	25									

NOTES: - 3 attempts were made in boring; 2 attempts were unsuccessful due to obstructions at about 2.5 ft B.G.S.

**LOG OF BORING**

<b>PROJECT:</b> MolyCorp, Inc. <b>PROJECT NO:</b> 5330 -- 00001 <b>LOCATION:</b> Washington, PA <b>GEOLOGIST:</b> P. Anderson <b>DRILLER:</b> B. Lawrence <b>DRILLING/SAMPLING METHOD:</b> 6"OD Auger / 2" OD Split spoon	<b>BORING NUMBER:</b> SB-270 <b>DATE STARTED:</b> 5/10/97 <b>DATE COMPLETED:</b> 5/10/97 <b>GROUNDWATER DEPTH:</b> <b>ELEVATION:</b>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					0.4 ft concrete; dk. grey FILL; gravel, slag/slag sand, sl. moist, dense; wet @ 8 ft; sheen & hydrocarbon odor				No elevated Rad. readings
	5				Fill					
	10									
	13									
	15				CL	lt. brown/tan CLAY, med. plasticity, sl. moist, tr. silt, little of sand; Stiffer @ 19.5 ft				
	20									
	21.8					Auger Refusal @ 21.8 ft.				
	25									

**NOTES:** -  $\gamma$  : 90-100 HR/hr @ surface



LOG OF BORING

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB271  
 DATE STARTED: 5/31/94  
 DATE COMPLETED: 5/31/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/b	COMMENTS
							Time	Date		
	0		124"			0.4 ft concrete; grey SLAG/SLAG SAND, loose, sl. moist, tr. red brick fragments @ 8 ft - grey SAND				
	5				Fill SP					
	8.5									
	10				CL	dk. grey CLAY w/ some fine sand, soft, med. plasticity, moist				
	15				SC	@ 17 ft - color change to grey/brown - increasing sand & moisture w/ depth				
	20									
	22.6									
	25					Auger Refusal at 22.6 ft				

NOTES: - hole moved west to avoid overhead lines

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5830.001*  
 LOCATION: *Washington, MA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 272*  
 DATE STARTED: *5/26/94*  
 DATE COMPLETED: *5/26/94*  
 GROUNDWATER DEPTH: *~7-8'*  
 - ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Water (ppm) pH	COMMENTS
							Time	Date		
	0									
	1								150	
	2								16.5	<i>suik.</i>
	3				<i>Fill</i>	<i>brown sand (m-f) some silt &amp; slag/gravel mixed &lt; 3/8" dia (moist-sat) gets</i>				
	4					<i>dark brown with depth</i>			120	<i>0-5'</i>
	5								16.5	
	6								130-	
	7								160	<i>5-10'</i>
	8				<i>SM</i>	<i>gray sand (m) some silt &amp; rock frag &lt; 1/8" dia trace</i>			20	
	9					<i>clay (sat.)</i>			130	<i>10-15'</i>
	10								20	
	11									
	12									
	13									
	14					<i>brown silt some clay</i>				
	15				<i>ML</i>	<i>trace of sand (f)</i>				
	16					<i>(plastic that increases with depth) (sat)</i>				
	17									
	18									
	19									
	20									
	21									
	22					<i>Auger refusal - 23'</i>				
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

# LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Moroney (Terra Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 273*  
 DATE STARTED: *6/10/94*  
 DATE COMPLETED: *6/10/94*  
 GROUNDWATER DEPTH: *6'*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MWD CPM SPM L/HR	COMMENTS
							Time	Date		
	0									
	1					<i>Blacktop</i>				
	2					<i>gray-dk brown silt some</i>			<i>320-</i>	<i>Surface</i>
	3					<i>sand (inf) and slag/gravel</i>			<i>360</i>	
	4				<i>Fill</i>	<i>mix &lt;math&gt;\frac{3}{4}&lt;/math&gt;" diam trace of</i>			<i>90-</i>	
	5					<i>clay hard material</i>			<i>110</i>	
	6					<i>at (2.5-4.0') &amp; 27'</i>				
	7					<i>(moist)</i>				
	8					<i>brown &amp; lat brown clay</i>				
	9				<i>CL</i>	<i>some silt trace of sand (f)</i>				
	10					<i>&amp; slag (plastic) in -1.</i>				
	11					<i>alternating with</i>				
	12					<i>gray silt little clay trace</i>				
	13					<i>rock frag &lt;math&gt;\frac{1}{4}&lt;/math&gt;" diam (photo)</i>				
	14					<i>(sat)</i>				
	15									
	16									
	17					<i>No Return</i>				
	18									
	19					<i>Auger Refused - 19'</i>				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

## LOG OF BORING

PROJECT: <u>MOLYCORP</u> PROJECT NO: LOCATION: <u>Washington, PA</u> GEOLOGIST: <u>P. Anderson</u> DRILLER: DRILLING/SAMPLING METHOD:	BORING NUMBER: <u>SB 274</u> DATE STARTED: <u>6/12/94</u> DATE COMPLETED: <u>6/12/94</u> (Gecl. #1 p.133) GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS	
							Time	Date			
	0				—	Concrete					
	1				Fill	DK. brown slag/slag Sand, dense, sl. moist					
	2										
	3										
	4										
	5										
	6										
	7	6'				Grind @ 6'				no cuttings	
	8										
	9										
	10	9.2'				End boring @ 9.2' (Refusal)					

NOTES:

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PAGE 1 OF

## LOG OF BORING

**PROJECT:** MGLY CORP  
**PROJECT NO:**  
**LOCATION:** Washington, PA  
**GEOLOGIST:** P. Anderson  
**DRILLER:**  
**DRILLING/SAMPLING METHOD:**

**BORING NUMBER:** SB 275 (A)  
**DATE STARTED:** 6/12/94  
**DATE COMPLETED:** 6/12/94 (Geol #1, p. 133)  
**GROUNDWATER DEPTH:**  
**ELEVATION:**

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0					0.4' Concrete, then SLAG				
	5				Fill	Grind @ 4'				
	10	9.5'				Easier Drilling @ 2.5' (Out of FILL)				
	15				CL	Grey/Brn., med. plastic CLAY				
	20	16'			SP	Stiffer Layers of SAND & GRAVEL saturated.				
	25	23'				Refusal @ 23'				

**NOTES:**

LOG OF BORING

PROJECT: *Molycorp Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Doug Norrany (Testa Testing)*  
 DRILLING/SAMPLING METHOD: *Auger Corings*

BORING NUMBER: *SB 276*  
 DATE STARTED: *6/15/94*  
 DATE COMPLETED: *6/15/94*  
 GROUNDWATER DEPTH: *~15'*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		LABS	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>brown silt some sand (s)</i>			120 30	surf.
	2			<i>+ slag/gravel/min &lt; 1" dia</i>						
	3			<i>(low plast) more clay</i>						
	4			<i>with depth (dry-moist)</i>						
	5									
	6									
	7									
	8				ML	<i>brown &amp; gray silt some</i>				
	9			<i>clay little sand (s)</i>						
	10			<i>(med plast) (suv)</i>						
	11				<i>Alternating with</i>					
	12									
	13				CL	<i>clay some silt trace of</i>				
	14			<i>sand (s) (plastic) (suv)</i>						
	15									
	16									
	17					<i>Hard Pan (harder drilling)</i>				
	18									
	19									
	20									
	21					<i>Auger Refusal - 24.5</i>				
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES: *Drilled at a 45° angle under pond # B.*

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.C01  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-278  
 DATE STARTED: 6/30/94  
 DATE COMPLETED: 6/30/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3 1/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MINI PAD UC/HR	COMMENTS
							Time	Date		
01	0.5					0.5' CONCRETE				
02		25			FILL	DK GREY FINE (FERROUS STAIN)				
03	1.5	38	11"			SLAG FILL, sl. moist	0812	6/30/94	20	
04		50				DK GREY SLAG AS ABOVE,				
05		50/3	9'		FILL	DRY		6/30/94	22	
06	3						0814			
07		50/3				SLAG AS ABOVE, DRY				
08					FILL			6/30/94	22	
09	4.5		3.5"				0825			
10		14				FINE GREY AND BLACK SLAG				
11		12	7	16"	FILL	BECOMES MED. GREY w/DEPTH, SOME REDDISH-BROWN AREAS, GLASS; DRY		6/30/94	22	20% O <sub>2</sub> 0% LEL
12	6						0838			
13		21				MED GREY FINE				
14		50/3	14'		FILL	SLAG AS ABOVE, DRY		6/30/94	22	
15	7.5						0842			
16		47				SLAG FILL AS ABOVE, DRY				
17		50/0	13"		FILL			6/30/94		
18	9						0901		15	
19		4				SLAG AS ABOVE, moist				
20		3			FILL			6/30/94		
21	10.5	3	NR				0908			
22		4								
23		3						6/30/94		
24	12	4	NR							
25		4				lt. grey and tan mottled clay	0911			
26		7				with silt, tr. fine sand,				
27	13.5	7	5"		CL	med. plast., med. stiff, moist		6/30/94	8	
28		4				CLAY AS ABOVE WITH SAND	0918			
29		5				BECOMES tr. SAND, some organic				
30	15	11	11"		CL	mottling, tr. fine pebbles, med. PLASTICITY, MED, STIFF, sl. moist	0921	6/30/94	18	

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.C01  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 5/4" I.D. HOLLOW STEM AUGERS

BORING NUMBER: SB-28 (cont'd)  
 DATE STARTED: 6/30/94  
 DATE COMPLETED: 6/30/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME RAD DATE	COMMENTS
							Time	Date		
31	15.9	1				CLAY AS ABOVE				
32		3			CL				6/30/94	
33	18.5	3	8"				0931		18	
34		5			CL/MC	CLAY AS ABOVE, CONTACTING YELLOW BROWN SILT WITH CLAY AND PEBBLES.			6/30/94	
35		12	3"				0937			
	18					BOTTOM OF BORING @ 17.5				
	19.5									
	21									
	22.5									
	24									
	25.5									
	27									
	28.5									
	30									

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD split spoon

BORING NUMBER: SB 279  
 DATE STARTED: 6/21/97  
 DATE COMPLETED: 6/21/97  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1						lt. brown/tan SAND, dry				2 rad
2		2			Fill	med-fine, w-sorted, loose	11:51	6/21	15	
3	1.5	2	12							
4		2			"	As Above				
5		2			"					
6	3	3	16		"		11:53	6/21	14	
7		4			"	lt. brown-tan SAND				
8		3			"	as above; slag in spoon tip				
9	4.5	7	18		"		11:58	6/21	14	
10		50 1/2"			"	grey SLAG/SLAG SAND, v. dense, dry				1 rad
11			4		"					
12	6				"		11:59	6/21	14	
13		15			"	As Above, moist				2 rad
14		63	9		"					
15	7.5	55 1/2"			"		13:38	6/21	14	
16		50 1/3"			"	As Above, dry, friable				2 rad
17			7		"					
18	9				"		13:45	6/21	14	
19		48			"	As Above				
20		37			"					
21	10.5	9	16		"		14:02	6/21	14	
22		5			"	0.4 ft As Above; contacting dk. grey CLAY, med. plasticity,				2 rad
23		7			CL	soft, saturated	14:05	6/21	14	
24	12	7	12		CL					
25		4			"	As Above				2 rad
26		5			CL					
27	13.5	5	12		CL		14:28	6/21	14	
28		6			"	As Above, color change to lt. brown/tan; tr. fine sand				
29		7			CL					
30	15	11	14		CL		14:32	6/21	14	

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB-279  
 PROJECT NO: 5330 -- 00001 DATE STARTED:  
 LOCATION: Washington, PA DATE COMPLETED:  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: ELEVATION:  
 DRILLING/SAMPLING METHOD:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 1/8"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
31	15	5				CLAY as above				
32		5			CL		14:50	6/21	14	
33	16.5	5	15							
34		8			CL	CLAY as above; then brown/orange, friable, dry				
35		7				CLAY	14:55	6/21	14	
36	18	7	14							
37		6			CL	As Above, moist-wet,				2 rad
38		9				tr. fine gravel	14:59	6/21	14	
39	19.5	21	10							
40		29			CL	As Above; no hard				1 rad
41		50/2"	3			clay/shale picked up	15:05	6/21	14	
42	21					spoon refusal at 20.2 ft.				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-280  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 6/20/94  
 LOCATION: Washington, PA DATE COMPLETED: 6/21/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers / 2" OD split spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0.5									
1		2			Fill	fine-med SAND, w-sorted, yellow/tan, loose, dry	14:08	6/20	15	130 MR/hr @ surface
2		2								
3	2	2	11							
4		1			"	8" SAND as above; 4" white CLAY w/ some sand, soft, greasy, wet, low plasticity; 6" med SAND, tan, w-sorted	14:09	6/20	15	4 rad
5		1	18"							
6		3	24"							
7	4	4								
8		41			"	SAND as above; contacting ferromoly. SLAG/SLAG SAND, dense, dry	14:13	6/20	10	4 rad
9		39	19"							
10		27	24"							
11	6	25								
12		21								
13		12			"	grey SLAG/SLAG SAND (ferromoly.), dry, med. dense	7:56	6/21	18	2 rad
14	7.5	13	11							
15		13			"	As Above, moist; contacting black Fly ash, cohesive, w/ some sand, moist	8:00	6/21	15	2 rad
16		9	9							
17	9	2								
18		12			"	blk FLY ASH, hard, friable material; contacting grey fine SAND & SILT, hard, dry	8:08	6/21	14	2 rad
19		63	8							
20	10.5	50/1"								
21		5			CL	As Above, contacting grey-brown CLAY w/ some silt, soft, sl. moist, med. plasticity	8:18	6/21	14	2 rad
22		2	9							
23	12	2								
24		3			CL	grey CLAY & fine SAND, saturated, soft; some layers of clay as above	8:27	6/21	13	
25		4	12							
26	13.5	5								
27		3			CL	lt. brown/grey CLAY w/ tr. v. fine, angular gravel or coarse sand, stiff, low plasticity	8:30	6/21	14	2 rad
28		3	10							
29	15	5								

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: 56-280  
 PROJECT NO: 5330 -- 00001 DATE STARTED:  
 LOCATION: Washington, PA DATE COMPLETED:  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: ELEVATION:  
 DRILLING/SAMPLING METHOD:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM nR/h	COMMENTS
							Time	Date		
30	15.0	2				CLAY as above				2 rad
31		2								
32	16.5	3	13				9:40	6/21	14	
33		4				CLAY as above, w/ layer of clay & some fine gravel, sl. moist-wet				
34		2					9:43	6/21	14	
35	18	3	16							
36		5				As Above, grading to GRAVELLY CLAY, dense, sl. moist-dry				
37		11					9:56	6/21	13	
38	19.5	12	15							
39		23				grey CLAY w/ tr. weathered shale, hard, dry				
40		27					10:00	6/21	12	
41	21	31	14							
42		13				As Above	10:15	6/21	12	2 rad
43		21	3							
44	22.5	23								
45		18				As Above	10:20	6/21	—	1 rad
46		27	2							
47	24	50/4"				spec. refusal at 23.8 ft.				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: A. Murphy DRILLER: Lambert Drilling Co. DRILLING/SAMPLING METHOD: 4 1/4" S.S. Auger	BORING NUMBER: SB-281 DATE STARTED: 8/4/94 (in Bldg #33) DATE COMPLETED: 8/4/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Concrete				
	0.5									
	5				Fill	Black fine sand size granular slag & fill material, rock fragments, some silt, dry, loose, brick fragments				
	10									
	15				CL	Black, damp silty clay				
	20									
	23.5				CL	Tan brown silty clay				
	25					Bedrock - weathered shale or alluvial deposit				
						T.D. @ 24'				

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330-001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 4" O.D. SOLID STEM AUGERS

BORING NUMBER: 58-282  
 DATE STARTED: 6/30/94  
 DATE COMPLETED: 6/30/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME RND FROM 4/16	COMMENTS	
							Time	Date			
	0.5								8	AT SURFACE	
	1.5				FILL	TAN SILICA SAND FILL					
	3										
	4.5										
	6					BE COMPACTED					
	7.5										
	9										
	10.5				ML	ORANGE BROWN AND LT. GREY MOTTLED SILT WITH CLAY, MED. PLASTICITY, MED. STIFF, MOIST					
	12										
	13.5										
	15					MED BROWN SILT WITH					

NOTES:

LOG OF BORING

PROJECT: MOLYCORD, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-282 (cont'd)  
 DATE STARTED: 6/30/94  
 DATE COMPLETED: 6/30/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		THING READ FROM LOG	COMMENTS
							Time	Date		
	15					SAND, MED. PLASTICITY, MED STIFF, SATURATED				
	18.5				ML					
	18					BECOMES STIFF TO DRILL, NO AUGER CUTTINGS.				
	19.5									
	21					BOTTOM OF BORING @ 20.8				
	22.5									
	24									
	25.5									
	27									
	28.5									
	30									

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB 283  
 DATE STARTED: 6/22/94  
 DATE COMPLETED: 6/22/94  
 GROUNDWATER DEPTH: 11 ft  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					ce ment; brown/black SAND & SILT, some med-fine sub-angular gravel, sl. moist				
	3.7				Fill					
	5				SM	dk. brown fine SAND w/ some silt & clay, cohesive, soft, moist				@ 11 ft
	10									
	12									
	15				CL	gray CLAY w/ some silt, low plasticity, sl. moist,				
	20	20.5				@ 20.5 ft - stiffer drilling				
	22.7				GP	fine angular GRAVEL				
	25					Auger Refusal at 22.7 ft				

NOTES:



LOG OF BORING

PROJECT: MOLY CORP, INC.  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: EB-284  
 DATE STARTED: 7/6/94  
 DATE COMPLETED: 7/7/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0.5				FILL	ASPHALT, SUBBASE				
	1.5				FILL	DR. Brown STAY, WITH PEBBLES and ROCK FRAGMENTS, sl. moist				
	3.0				FILL	Yellowbrown and RED Brown brick FILL, moist to wet				
	4.5				FILL	Grey brown fine granular slag FILL WITH PEBBLES and brick fragments, stiff, friable, moist to wet.				
	6.0				FILL	Grey brown fine granular slag FILL WITH PEBBLES and brick fragments, stiff, friable, moist to wet.				
	7.5				FILL	Grey brown fine granular slag FILL WITH PEBBLES and brick fragments, stiff, friable, moist to wet.				
	9				FILL	Grey brown fine granular slag FILL WITH PEBBLES and brick fragments, stiff, friable, moist to wet.				
	10.5				CL	Olive brown to medium brown SILTY CLAY, friable, low plasticity, sl. moist.				
	12				CL	Brown and lt. grey mottled CLAY, tr. SILT, v. STIFF, low plasticity, dry				
	13.5				CL	Brown and lt. grey mottled CLAY, tr. SILT, v. STIFF, low plasticity, dry				
	15				CL	Brown and lt. grey mottled CLAY, tr. SILT, v. STIFF, low plasticity, dry				

NOTES:

Bottom of boring @ 200'

LOG OF BORING

PROJECT: MOLYCORD, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB - 285  
 DATE STARTED: 7/6/94  
 DATE COMPLETED: 7/6/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	0.5					ASPHALT & SUBBASE				
	1				FILL	DR BROWN SILT WITH PEBBLES AND ROCK FRAGMENTS, DRY TO WET				
	1.5				FILL	FINE GREY BROWN SLAG WITH PEBBLES, DRY, STIFF				
	3									
	4.5									
	6				FILL	RED BROWN AND YELLOW BRICKS, WITH BROWN SILT, MOIST TO WET, HARD TO DRILL				
	7.5									
	9				CL	OLIVE BROWN AND YELLOW BROWN SILTY CLAY, LOW PLASTICITY, SL. MOIST. BECOMES MED. BROWN WITH DEPTH.				
	10.5									
	12									
	13.5				CL	BROWN AND LIGHT GREY MOTTLED CLAY, TRACE SILT, LOW PLASTICITY, V. STIFF, DRY				
	15									

NOTES:

BOTTOM OF BORING @ 20.3 FT.

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 4" O.D. SOUD STEM AUGERS.

BORING NUMBER: SB-286  
 DATE STARTED: 7/6/94  
 DATE COMPLETED: 7/6/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0					ASPHALT SUBBASE				
	0.5									
	1.5					DARK BROWN SLAG-FILL FINE GRAINED WITH PEBBLES AND ROCK FRAGS. DRY				
	3									
	4.5									
	6					BROWN AND YELLOW BROWN BRICKS AND GREY SLAG-FILL, WET.				
	7.5									
	9					OLIVE BROWN SILT WITH SOME CLAY, TRACE ROCK FRAGMENTS, WET				
	10.5									
	12									
	13.5					YELLOW BROWN SILTY CLAY, STIFF, MED. PLASTICITY, SL. MOIST.				
	15									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 4" O.D. SOLID STEM AUGERS

BORING NUMBER: 50-286 (cont'd)  
 DATE STARTED: 7/6/94  
 DATE COMPLETED: 7/6/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15 0									
	16.53					AS ABOVE				
	18 6				CL	BROWN AND LIGHT GREY MOTTLED CLAY, STIFF, LOW PLASTICITY, SLIGHTLY MOIST				
	19.5 9									
	21 12					BOTTOM OF BORING @ 10.4 ft.				
	22.5 15									
	24 18									
	25.5 21									
	27 24									
	28.5 27									
	30 30									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330--0001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID Augers	BORING NUMBER: SB-287 DATE STARTED: 7/7/94 DATE COMPLETED: 7/7/94 GROUNDWATER DEPTH: ELEVATION:
--	---

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124%							
	2				Fill	brick & ferrotungsten, dense, dry				
	5				CL	grey CLAY & SAND, low plasticity, water @ 7-8 ft				
	8									
	10				CL	grey CLAY, soft, med. plasticity, sl. moist-moist				
	15									
	17.7									
	20					Auger Refusal at 17.7 ft				

NOTES:

PAGE 1 OF

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID Auger	BORING NUMBER: SB-288 DATE STARTED: 7/7/94 DATE COMPLETED: 7/7/94 GROUNDWATER DEPTH: ELEVATION:
--	---

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124"							
		2			Fill	SLAB, brown SAND & SILT, dry, dense				
	5				SC	grey CLAY & SAND w/tr. angular gravel, low plasticity; wet @ 4 ft				
	10				CL	grey CLAY, soft, med. plasticity @ 14.4 ft - stiffer, w/ rock fragments				Strong hydrocarbon odor
	15									
	17.2									
	20					Total Depth at 17.2 ft				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: 58-289  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 7/7/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/7/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5	5.5			Fill CL	grey slag/slag sand, loose, dry; wet @ 3ft; ferrotungsten @ 4 ft; then grey CLAY w/ fine sand, med. plasticity				
	10				CL	grey CLAY & SILT, med. plasticity ;  @ 14 ft - becoming stiffer, color change to lt. grey/brown				
	15	15.8				Total Depth at 15.8 ft				
	20									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: 58-290  
 DATE STARTED: 7/7/94  
 DATE COMPLETED: 7/7/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5	6.5			Fill	Slag/slag sand - 1.9 ft; wet - @ 4 ft Scratch on slag: 5.7-6.5 ft then CLAY & FINE SAND, soft, wet (ferrotungsten)				
	10				CL	grey CLAY & fine SAND, wet, low plasticity, no cohesion				
	15					@ 15 ft - stiffer drilling, color change to lt. grey, hydrocarbon odor				
	17.5									
	20					Total Depth @ 17.5 ft				

NOTES:



LOG OF BORING

PROJECT: <i>Molycorp, Inc</i> PROJECT NO: <i>5330 - - 00001</i> LOCATION: <i>Washington, PA</i> GEOLOGIST: <i>P. Anderson</i> DRILLER: <i>B. Lawrence</i> DRILLING/SAMPLING METHOD: <i>3 1/4" ID Auger</i>	BORING NUMBER: <i>SB-291</i> DATE STARTED: <i>7/7/94</i> DATE COMPLETED: <i>7/7/94</i> GROUNDWATER DEPTH: <i>7 ft</i> ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5				Fill	FILL: slag, brick fragments, brown silt, fly ash				
	7									
	10				CL	grey CLAY w/ fine sand & rock fragments, wet, low plasticity, v. soft				Σ @ 7 ft
	15					@ 13.5 ft - stiffer drilling				
	16.2					Total Depth at 16.2 ft				
	20									

NOTES: - 3 unsuccessful attempts were made before final (4th) boring was completed.

LOG OF BORING

PROJECT: MolyCorp, Inc  
 PROJECT NO: 5330 - - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-292  
 DATE STARTED: 7/7/94  
 DATE COMPLETED: 7/7/94  
 GROUNDWATER DEPTH: 4.5 ft  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY (%)	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124"							
	5				Fill	Slag is black/grey fly ash, dry, dense scratch on slag: 2.5-3.2 ft				8 @ 4.5 ft
	7									
	10				CL	brown/grey CLAY w/ silt & fine sand, soft, wet, some rock fragments cohesive - stiff (w/depth)				
	15					@ 15.3 ft - color change to brown, stiffens				
	16.3					Total Depth at 16.3 ft				
	20									

NOTES:

LOG OF BORING

PROJECT: **MOLYCO RD, INC.** BORING NUMBER: **SB-293**  
 PROJECT NO: **6330.001** DATE STARTED: **7/7/94**  
 LOCATION: **WASHINGTON, PA** DATE COMPLETED: **7/7/94**  
 GEOLOGIST: **A. LAFFERTY** GROUNDWATER DEPTH:  
 DRILLER: **TERRA TESTING, INC** ELEVATION:  
 DRILLING/SAMPLING METHOD:  
**4" O.D. SOLID STEM AUGERS**

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0.5				FILL	Asphalt & subbase				
	1.5				FILL	DK brown and grey sandy SILT, WITH GRAVEL FILL.				
	3									
	4.5				CL	MEDIUM BROWN SILTY CLAY friable, sl. moist.				
	6									
	7.5				ML	Orange brown SILT WITH SAND AND rock fragments, friable, dry.				
	9									
	10.5									
	12									
	13.5				ML	DARK BROWN SILT WITH CLAY, STIFF, MEDIUM PLASTICITY, SLIGHTLY MOIST				
	15									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, INC.

BORING NUMBER: SB-293 (cont)

PROJECT NO: 5330.001

DATE STARTED: 7/7/94

LOCATION: WASHINGTON, PA

DATE COMPLETED: 7/7/94

GEOLOGIST: A. LAFFERTY

GROUNDWATER DEPTH:

DRILLER: TERRA TESTING, INC.

ELEVATION:

DRILLING/SAMPLING METHOD:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.0									
	16.5				ML	AS ABOVE				
	18.0				CL	light brown to grey brown CL, friable, low plasticity, dry				
						Bottom of Boring @ 180'				
	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

# LOG OF BORING

<p>PROJECT: Molycorp, Inc.          PROJECT NO: 5330 — — 00001          LOCATION: Washington, PA          GEOLOGIST: P. Anderson          DRILLER: B. Lawrence          DRILLING/SAMPLING METHOD: 3 1/4" ID Auger</p>	<p>BORING NUMBER: SB-294          DATE STARTED: 7/12/94          DATE COMPLETED: 7/12/94          GROUNDWATER DEPTH:          ELEVATION:</p>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124"			Fill asphalt, slag, red dog, brick, brown sand, med. dense, dry				40 uR/hr @ surface
	5				SM	brown fine SAND w/ some silt & tr. clay, dense, dry, friable; increasing clay content below 10 ft				
	10				CL	@ 11 ft - color change to grey				
	15					@ 15 ft - brown CLAY stiff-hard, dry, soft, sl. moist, low plasticity				20 uR/hr @ surface
	17									
	20				CL	grey CLAY & SHALE, hard, dry				
	20.1					Total Depth at 20.1 ft				
	25									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: A. Murphy DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: SB-294 (Redrill) DATE STARTED: 8/15/94 DATE COMPLETED: 8/15/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		18"			Cuttings are dry grout  Same lithology as original SB-294 (p. 36 of log book)				

NOTES:

PAGE 1 OF /

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.

BORING NUMBER: SB-295  
 DATE STARTED: 7/14/94  
 DATE COMPLETED: 7/14/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

DRILLING/SAMPLING METHOD:  
 4" O.D. SOLID STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TMD 2AD ppm 48 hr.	COMMENTS	
							Time	Date			
	0.5					ASPHALT SUBBASE					
	1.5				FILL	DE Brown silt w/ vitrified black slag FILL - sl. moist.					
	3				FILL	Yellow brown Brck.					
	4.5				CL	TAN TO LIGHT BROWN CLAY SOME SILT, low to med. plasticity, DRY					
	6										
	7.5										
	9										
	10.5										
	12										
	13.5										
	15										
	16.5										
	17.5										
	15				CL	GREY SILT CLAY, SOFT, DAMP TO WET, MED. PLASTICITY					

NOTES: BOTTOM OF BORING @ 17.5 FT.

LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 4" O.D. SOLID STEM AUGERS

BORING NUMBER: SB-296  
 DATE STARTED: 7/14/94  
 DATE COMPLETED: 7/14/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	0.5					ASPHALT SUBBASE				
	1					FILL DE BRUN SILT W/ BRICK FR. S&G and of red. sb. moist				
	1.5					FILL Yellow and red brown bricks				
	3					dry to slightly moist				
	4.5									
	6									
	7.5									
	9									
	10.5									
	12									
	13.5									
	15									

NOTES: BOTTOM OF BORING @ 19.5



LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330 . 001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, Inc  
 DRILLING/SAMPLING METHOD: 4" O.D. SOLO STEM AUGERS

BORING NUMBER: SB - 297  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNTG Rod ppm UR	COMMENTS
							Time	Date		
	0									
	0.5					ASPHALT & SUBBASE				Surface reading
	1.5				FILL	Light tan SAND WITH weathered brick and rock fragments, FILL, friable, dry				
	3									
	4.5				ML	Olive brown SILT with CLAY, low plasticity, friable, sl. moist.				
	6				ML	Orange brown SILT, trace sand and pebbles, friable, dry, low plasticity				
	7.5				ML	Tan to brown SILT, trace sand, friable, low plasticity, slightly moist.				
	9									
	10.5				ML	Tan sandy silt, trace clay, soft, no plasticity, damp to wet.				
	12									
	13.5									
	15									

NOTES:

# LOG OF BORING

PROJECT: **MOLYCORP, Inc**  
 PROJECT NO: **5330.001**  
 LOCATION: **WASHINGTON, PA**  
 GEOLOGIST:  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: **SB-297 (cont'd)**  
 DATE STARTED: **7/11/94**  
 DATE COMPLETED: **7/11/94**  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.0									
	16.5				CL	TAN to light grey CLAY w/ silt, sand and rock fragments (shale, sandstone) dry, friable				
	18.0					Bottom of Boring @ 17.3'				
	19.0									
	20.0									
	21.0									
	22.0									
	23.0									
	24.0									
	25.0									
	26.0									
	27.0									
	28.0									
	29.0									
	30.0									

NOTES:

LOG OF BORING

PROJECT: **MALYCORP, INC**  
 PROJECT NO: **5330.001**  
 LOCATION: **WASHINGTON, PA**  
 GEOLOGIST: **A. LAFFERTY**  
 DRILLER: **TERRA TESTING, INC.**  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: **SB-298**  
 DATE STARTED: **7/12/94**  
 DATE COMPLETED: **7/12/94**  
 GROUNDWATER DEPTH:  
 ELEVATION:

**4" O.D. SOLID STEM AUGERS**

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HAND RAO FOR MR	COMMENTS
							Time	Date		
	0.5					ASPHALT; SUBBASE.				Surface reading
	1.5				ALL	DARK BROWN SILT WITH VITRIFIED BLACK SLAG FRAGMENTS, BECKS, SL MOIST TO MOIST				
	3									
	4.5									
	6				CL	DARK BROWN SILTY CLAY BECOMES OLIVE BROWN WITH DEPTH, MED. PLASTIC, DAMP.				
	7.5									
	9									
	10.5									
	12				CL	MED. BROWN TO YEL, STIFF CLAY, LOW PLASTICITY, SL MOIST.				
	13.5				ML	BROWN SILT AND SAND, small rock fragments, dry				
	15				CL	Brown Grey CLAY; small weathered grey SHALE FRAGMENTS, STIFF, M. PLASTIC, SL. MOIST				

NOTES:

**BOTTOM OF BORING @ 15'**

LOG OF BORING

PROJECT: **MOLYCORP, INC**  
 PROJECT NO: **5330 001**  
 LOCATION: **WASHINGTON, PA.**  
 GEOLOGIST: **A. LAFFERTY**  
 DRILLER: **TERRA TESTING, INC.**  
 DRILLING/SAMPLING METHOD: **4" O.D. SOLID STEM AUGERS**

BORING NUMBER: **SB-299**  
 DATE STARTED: **7/12/94**  
 DATE COMPLETED: **7/12/94**  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		THU-LEAD ppm	COMMENTS
							Time	Date		
	0.5					ASPHALT; SUBBASE				Surface reading
	1.5					FILL DARK BROWN SILT AND VITRIFIED BLACK SLAG FILL, loose, sl. moist				
	3									
	4.5									
	6				ML	MEDIUM BROWN SILT WITH CLAY, MOIST, NO PLASTICITY, SOFT.				
	7.5					MEDIUM BROWN CLAY WITH SILT, SOFT, low plasticity, sl. moist. CL Becomes tan @ 12' with sand Becomes stiff @ 13 Becomes medium brown to grey brown tr. sand, med plasticity, sl. moist.				
	9									
	10.5									
	12									
	13.5									
	15					BOTTOM OF BORING @ 14.6				

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-300  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HHT# TZAD ppm	COMMENTS
							Time	Date		
	0									
	0.5 1					ASPHALT SUBBASE			4R	Surface readings
	2									
	1.5 3				FILL	DARK BROWN SILT WITH vitrified black slag and rock fragments, friable, dry.				
	4									
	5									
	3 6									
	7									
	8									
	4.5 9				FILL	RED BROWN AND YELLOW BROWN BRICKS, DEY.				
	10									
	11									
	6 12									
	13									
	14									
	7.5 15									
	16									
	17									
	9 18									
	19									
	20									
	10.5 21									
	22									
	23									
	12 24									
	25									
	26				ML	DARK BROWN SILT WITH CLAY, SOFT, NO PLASTICITY, WET TO SATURATED.				
	13.5 27									
	28									
	29				ML	Light Brown Silt with clay trace sand, soft, low plasticity, wet				
	15 30									

NOTES: BOTTOM OF BORING @ 16.2 ft.

LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-301  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		RAD	COMMENTS
							Time	Date		
	0									
	0.5				—	ASPHALT; SUBBASE				surface reading
	1.5				FILL	DARK BROWN WITH vitrified black slag FILL, friable, dry				
	3									
	4.5				FILL	YELLOW BROWN AND RED BROWN BRICK FRAGMENTS with glass FILL, friable, dry				
	6									
	7.5									
	9					SOFT, no auger cuttings.				
	10.5									
	12									
	13.5				ML	Light brown to tan SILT, trace clay, tr. sand no plasticity, wet to saturated becomes more clayey with depth.				
	15									

NOTES: BECOMES STIFF @ 17 BOTTOM OF BORING @ 18

LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-302

DATE STARTED: 7/13/94  
 DATE COMPLETED: 7/13/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. HOLLOW STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MINI RAD ppm 40/HR	COMMENTS
							Time	Date		
	0.5					ASPHALT				
01	1	10				0.5-1 SUBBASE				
02	1.5	16	10"		FILL	10-15 DARK BROWN SILT WITH VITRIFIED BLACK SLAG FILL				
03		11					1315			
04		3				SLAG AS ABOVE				
05	3	9	4"		FILL					
06		6					1317			
07		2				SLAG AS ABOVE				
08	4.5	6	4"		FILL					
09		4	2"				1331			
10		1				SLAG AS ABOVE, SANDY SILT WITH ROCK FRAGMENTS, SLAG, RED DOG, SATURATED				
11	6	1	5"		FILL		1333			
12		2								
13		1	8"		CL	SANDY SILT FILL AS ABOVE, CONTACTS 2" BROWN CLAY, TR. SILT, ROCK FRAGMENTS, WOOD, low to med. plast. moist, v. soft				
14	7.5	1					1337			
15		2								
16		1				CLAY AS ABOVE, WITH a fine micaceous sandy lense less 1/4" thick, v. soft				
17	9	2	14"		CL		1339			
18		1								
19		1	12"		CL	BROWN AND TAN MOTTLED CLAY, PLANT & WOOD FRAGMENTS, small rocks, med. plast. very soft sl. moist. Belowed dark brown				then grey with depth.
20	10.5	1					1349			
21		1				GREY CLAY AS ABOVE.				
22		1								
23	12	1	14"		CL					
24		2					1351			
25		1				BROWN AND GREY CLAY, tr. fine sand, med. plast. v. soft, slightly moist				
26	13.5	2	16"		CL		1400			
27		2								
28		2				CLAY AS ABOVE, BOTTOM 1" weathered red brown shale, sl. moist, stiff				
29	15	10	12"		CL		1404			

NOTES: AL

LOG OF BORING

PROJECT: **MOLYCORP, Inc** BORING NUMBER: **SB-302 (cont'd)**  
 PROJECT NO: **5330.001** DATE STARTED: **7/13/94**  
 LOCATION: **WASHINGTON, PA** DATE COMPLETED: **7/13/94**  
 GEOLOGIST: **A. LAFFERTY** GROUNDWATER DEPTH:  
 DRILLER: **TERRA TESTING, Inc.** ELEVATION:  
 DRILLING/SAMPLING METHOD: **3/4" I.D. Hollow Stem Augers.**

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
30	15.9									
31 32	15.5	8 50/3	8"			medium brown silt with clay and rock frags, shale, stone, coal, dry med. stiff, contacting	1413	7/13/94		weathered gray shale.
	16.3					BOTTOM OF BORING @ 16.3ft				
	18									
	19.5									
	21									
	22.5									
	24									
	25.5									
	27									
	28.5									
	30									

NOTES:



LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-303  
 DATE STARTED: 7/13/94  
 DATE COMPLETED: 7/13/94  
 GROUNDWATER DEPTH: 3.3 ft  
 ELEVATION:

3/4" I.D. HOLLOW STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME RAD DATE	COMMENTS
							Time	Date		
01	0.5					0-0.5' ASPHALT.				
02	1	10				0.5-1.0 SUBBASE				
03	1.5	12	9.5"		FILL	1.0-1.5 MEDIUM BROWN SILT WITH BLACK VIT. SLAG & ROCK FRAGMENTS	0901	7/13/94	12	
04	2	3				DK. BROWN SILT WITH SLAG				
05	3	3	4"		FILL	AS ABOVE.		7/13/94		
06	3	3					0910	7/13/94	12	
07	4	2				DK. BROWN SILT, FINE SLAG AND BRICK FRAGMENTS. CONTACTING				
08	5	1	10"		FILL	DK. BROWN SILT W/CLAY WOOD FRAGMENTS, NO PLAST. WET		7/13/94		
09	4.5	1					0918	7/13/94	12	
10	6	2				DARK BROWN AND TAN MOTTLED CLAY WITH SILT AND TRACE FINE SAND, VERY SOFT.				
11	7	1	4"		FILL	LOW PLAST. CLAMP		7/13/94		
12	6	3					0920	7/13/94	12	
13	8	2				FINE TAN AND RED BROWN SAND (WEATHERED BRICKS) MOTTLED,				
14	9	2	4"		FILL/CL	CONTACTING 2" OF GREY BROWN CLAY W/SILT, MED. PLAST. VERY SOFT		7/13/94		
15	7.5	2					0930	7/13/94		
16	15	1/1				CLAY AS ABOVE. WOOD FRAGMENT.				
17	17							7/13/94		
18	9	2	10"		CL		0938	7/13/94		
19	10	1				MEDIUM GREY CLAY, TRACE SAND, MED. PLASTICITY, V. SOFT, SLIGHTLY MOIST				
20	20	1	10"		CL			7/13/94		
21	10.5	1					0947	7/13/94		
22	22	2				CLAY AS ABOVE.				
23	23							7/13/94		
24	12	1	10"		CL		0955	7/13/94		
25	25	1/1				2" OF MEDIUM BROWN TO TAN CLAY WITH SMALL COAL AND CHALK FRAGS. CONTACTING GREY CLAY AND				
26	26					TE. SAND THIN FINE SAND LENS (SEE)				
27	13.5	1	10"		CL	V. SOFT, SL. MOIST TO MOIST, LOW PLAST. GREY CLAY AS ABOVE. CONTACTING		7/13/94		
28	28	19				3" OF FINE GREY SAND AND SHALE BROWN SS. FRAGS. NO PLAST. CONTACTING. MED. BROWN SANDY SILT	1002			
29	29	40	11"			ROCK FRAGS, NO PLASTICITY, V. SOFT.	1008	7/13/94		02 20% LEL 100%
30	15	10								

NOTES:

dry.

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.C01  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-303 (cont'd.)  
 DATE STARTED: 7/13/94  
 DATE COMPLETED: 7/13/94  
 GROUNDWATER DEPTH: 3.3 ft.  
 ELEVATION:

3/4" I.D. Hollow Stem Augers.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		LAB #	COMMENTS
							Time	Date		
31 32	15.9	50/4	9"		CL	Very dry, brown and grey silty clay, stiff, dry, grades into a clayey very weathered grey shale	1007	7/13/94		del.
	16.5					Bottom of Boring @ 15.9				
	18									
	19.5									
	21									
	22.5									
	24									
	25.5									
	27									
	28.5									
	30									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:  
 BORING NUMBER: SB-304  
 DATE STARTED: 7/13/94  
 DATE COMPLETED: 7/13/94  
 GROUNDWATER DEPTH:  
 ELEVATION:  
 4" O.D. SOUD STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	0.5					ASPHALT & SUBBASE				
	1.5				FILL	DK. BROWN SILT WITH VITRIFIED BLACK SLAG FILL, sl. moist.				
	3									
	4.5									
	6									
	7.5				CL	BROWN SILTY CLAY, trace sand,				
	9									
	10.5									
	12				CL	BROWN AND GREEN CLAY tr. fine SAND, low plasticity, moist.				
	13.5									
	15									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-304 (cont'd)  
 DATE STARTED: 7/13/94  
 DATE COMPLETED: 7/13/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGER

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15					as above				
	16.5				ML	BROWN SILT WITH ROCK fragments, DRY, STIFF				
	18					BOTTOM OF BORING @ 170"				
	19.5									
	21									
	22.5									
	24									
	25.5									
	27									
	28.5									
	30									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, INC.  
 PROJECT NO: 9330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-305  
 DATE STARTED: 7/12/94  
 DATE COMPLETED: 7/12/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TMD RAD ppm	COMMENTS
							Time	Date		
	0									
	0.5					ASPHALT, SUBBASE			4R	
	1.5									SURFACE READING
	3					DARK BROWN SILT WITH FILL VITRIFIED BRICK SLAB FILL, dry to sl. moist				
	4.5					WET @ 3.0 ft.				
	6									
	7.5									
	9				ML	Light brown to olive brown SILT WITH CLAY AND SAND, BECOMES MORE CLAYEY W/DEPTH, no to low plasticity, soft, wet to saturated.				
	10.5									
	12									
	13.5									
	15									

NOTES: Bottom of Boring @ 16.5

LOG OF BORING

PROJECT: MOLYCORP, INC.

BORING NUMBER: SB-306

PROJECT NO: 5330.001

DATE STARTED: 7/11/94

LOCATION: WASHINGTON, PA.

DATE COMPLETED: 7/11/94

GEOLOGIST: A. LAFFERTY

GROUNDWATER DEPTH:

DRILLER: TERRA TESTING, INC

ELEVATION:

DRILLING/SAMPLING METHOD:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU RAD APP. MR	COMMENTS
							Time	Date		
	0									
	0.5	1				ASPHALT; SUBBASE				SURFACE READING
		2								
	1.5	3				FILL olive grey fine grained SAND, dense, dry.				
		4								
		5								
	3	6								
		7								
		8				FILL Orange and yellow brown beads, wet. dense, no plasticity				
	4.5	9								
		10								
		11								
	6	12								
		13				ML Grey brown SILT with CLAY, trace sand, soft. no plasticity moist.				
		14								
	7.5	15								
		16								
		17								
	9	18								
		19								
		20								
	10.5	21								
		22								
		23								
	12	24								
		25								
		26								
	13.5	27								
		28								
		29								
	15	30								

NOTES:

LOG OF BORING

PROJECT: MOLYCORD, Inc

PROJECT NO: 5330.001

LOCATION: WASHINGTON, PA

GEOLOGIST: A. LAFFERTY

DRILLER: TERBA TESTING, INC.

DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-306 (cont)

DATE STARTED: 7/11/94

DATE COMPLETED: 7/11/94

GROUNDWATER DEPTH:

ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.0									
	16.5				CL	DARK GREY CLAY WITH SILT AND TR. SAND, SOFT, LOW TO MED. PLASTICITY SL. MOST SAND CONTENT INCREASES W/DEPTH				
	18.0				ML	Orange brown to dark brown silt, with sand and clay, stiff				
	19.5					Bottom of Boring @ 17.8 ft.				
	21.0									
	22.0									
	23.0									
	24.0									
	25.0									
	26.0									
	27.0									
	28.0									
	29.0									
	30.0									

NOTES:

LOG OF BORING

PROJECT: MOLYCORD, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-307  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0.5					asphalt substrate				
	1.5				FILL	Olne grey fine sand dense dry				
	3									
	4.5				FILL	Yellow and red brown bricks, sl. moist				
	6									
	7.5									
	9				CL	Grey brown clay w/ some silt and FINE SAND.				
	10.5					INCREASING SAND CONTENT AND MOISTURE WITH DEPTH				
	12									
	13.5									
	15									

NOTES:



# LOG OF BORING

PROJECT: **MOLYCORP, Inc**  
 PROJECT NO: **5830 001**  
 LOCATION: **WASHINGTON, PA**  
 GEOLOGIST:  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: **SB-307 (cont'd)**  
 DATE STARTED: **7/11/94**  
 DATE COMPLETED: **7/11/94**  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS
							Time	Date		
	15.0									
	16.5				CL	DARK GREY CLAY, SOFT. MEDIUM PLASTICITY, SLIGHTLY MOIST, sand increases w/depth				
	18.0									
	19.5									
	21.0									
	21.0					BOTTOM OF BORING @ 19.6'				
	22.0									
	23.0									
	24.0									
	25.0									
	26.0									
	27.0									
	28.0									
	29.0									
	30.0									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc.  
 PROJECT NO: 6330.001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:  
 4" D SOLID STEM AUGERS

BORING NUMBER: SB-308  
 DATE STARTED: 7/12/94  
 DATE COMPLETED: 7/12/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	0.5					ASPHALT; SUBBASE				
	1.5					DARK BROWN TO GREY FILL GRANULAR SLAG, VITRIFIED BLACK SLAG AND BRKKS, FILL, sl. moist.				
	3									
	4.5									
	6									
	7.5									
	9				CL	MEDIUM BROWN TO OLIVE BROWN CLAY WITH SILT, ty. SAND, BECOMES MORE SANDY WITH DEPTH, SOFT, MED. PLASTICITY, sl. moist.				
	10.5									
	12									
	13.5									
	15									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TE  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-308 (cont'd)  
 DATE STARTED: 7/12/94  
 DATE COMPLETED: 7/12/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15									
	16.5				CL	CLAY AS ABOVE				
						GREY CLAY, STIFF, dry				
						BOTTOM OF BORING @ 16.5				
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: <b>MOLYCORP, INC</b> PROJECT NO: <b>8330.001</b> LOCATION: <b>WASHINGTON, PA</b> GEOLOGIST: <b>A. LAFFEERTY</b> DRILLER: <b>TERRA TESTING, INC</b> DRILLING/SAMPLING METHOD: <b>4" O.D. SOLID STEM AUGERS</b>	BORING NUMBER: <b>SB-309</b> DATE STARTED: <b>7/8/94</b> DATE COMPLETED: <b>7/8/94</b> GROUNDWATER DEPTH: ELEVATION:
--	--

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TNR ppm RAD	COMMENTS	
							Time	Date			
	0.5									2548 Surface reading	
	1.5				FILL	DARK BROWN SILT with small pebbles, black vitrified slag, and brick FILL, dry to slightly moist, low plasticity.					
	3										
	4.5										
	6										
	7.5										
	9				ML	MEDIUM BROWN SILT, trace clay, tr. sand, small pebbles, no plasticity, wet to saturated.					
	10.5				ML	Olive brown SILT with clay, soft, low plasticity, sl. moist.					
	12										
	13.5										
	15										

NOTES: Bottom of Boring @ 14.7'

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERN  
 DRILLER: TERRA TESTING, Inc.  
 DRILLING/SAMPLING METHOD: 4" O.D. SOLID STEM AUGERS

BORING NUMBER: 93-310  
 DATE STARTED: 7/8/94  
 DATE COMPLETED: 7/8/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMR - ppm RAD	COMMENTS
							Time	Date		
	0									
	0.5 1									
	2									
	1.5 3				FILL	DARK BROWN SILT WITH small pebbles, brick, and vitrified Black SLAG FILL, low plasticity, dry				
	4									
	5									
	3 6									
	7									
	8									
	4.5 9				ML	Olive brown SILT WITH CLAY, friable, sl. moist, low plasticity				
	10									
	11									
	6 12					becomes dark brown WITH DEPTH				
	13									
	14									
	7.5 15									
	16									
	17									
	9 18									
	19									
	20									
	10.5 21				ML	MEDIUM BROWN SILT with clay, tr. sand, med. plasticity, soft, wet.				
	22									
	23									
	12 24									
	25									
	26									
	13.5 27									
	28									
	29									
	15 30					CL Grey Clay, dry, stiff BOTTOM OF BORING @ N3				

NOTES:

LOG OF BORING

PROJECT: MOLYCOEP, Inc  
 PROJECT NO: 5330,001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFEY  
 DRILLER: TERRA TESTING, Inc.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-311  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. Hollow Stem Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MND RAD AR	COMMENTS
							Time	Date		
	0.5								25	Surface reactivity
	1.5									
	3									
	4.5									
	6									
	7.5									
	9									
	10.5									
	12									
	13.5									
	15									

FILL DARK BROWN SILT WITH BLACK VITRIFIED SLAG, FILL, dry, friable wet @ 3.0'

SOFT, NO AUGER CUTTINGS

NOTES:

BOTTOM OF BORING @ 16.0'

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.

BORING NUMBER: SB-312  
 DATE STARTED: 7/8/94  
 DATE COMPLETED: 7/8/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

DRILLING/SAMPLING METHOD:  
 4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HAW RAD APPR	COMMENTS
							Time	Date		
	0									
	0.5									Surface reading
	1.5				FILL	DARK BROWN SILT WITH vitrified BLACK SLAG AND small pebbles. sl. moist, friable			34	
	3									
	4.5				ML	DARK BROWN SILT WITH SAND AND ROCK FRAGMENTS, SOFT, NO PLASTICITY, WET TO SATURATED @ 3.0. BECOMES GREY BROWN WITH DEPTH				
	6									
	7.5									
	9				ML	Olive Brown to medium Brown SILT WITH CLAY and sand, moist, low PLASTICITY, SOFT				
	10.5									
	12									
	13.5									
	15					Becomes hard to drill at 15'				

NOTES: BOTTOM OF BORING @ 15.8

LOG OF BORING

PROJECT: MOLYCORP, INC.  
 PROJECT NO: 5330 001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-313  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3 1/4" I.D. Hollow Stem Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME RAD HR	COMMENTS
							Time	Date		
	0									
	0.5									
	1.5									
	3									
	4.5									
	6									
	7.5									
	9									
	10.5									
	12									
	13.5									
	15									

FILL  
 DARK BROWN SILT WITH VITRIFIED BLACK SLAG FILL, friable, sl. moist.  
 Damp to wet @ 3'

ML  
 Olive brown SILT with CLAY, low plasticity, soft, damp to wet.  
 Becomes MORE CLAYEY WITH DEPTH

BECOMES STIFF TO DEILL  
 BOTTOM OF BORING @ 16.2

NOTES:



LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, Inc.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: 58-314  
 DATE STARTED: 7/8/94  
 DATE COMPLETED: 7/8/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS
							Time	Date		
	0.5									
	1.5				FILL	DARK BROWN SILT WITH vitrified BLACK SLAG FILL, with bricks, friable, dry to sl. moist.				
	3									
	4.5				FILL	Fine granular grey SLAG, moist,				
	6									
	7.5									
	9									
	10.5				ML	Grey brown SILT with fine sand, trace clay, no plasticity, soft, saturated				
	12									
	13.5				ML	Dark brown to med brown clayey SILT with sand. Becomes stiff @ 14' low plasticity, soft, sl. moist.				
	15									

NOTES:

BOTTOM OF BORING @ 17.8'

LOG OF BORING

PROJECT: MOLICOPE, Inc.  
 PROJECT NO: 5330,001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, Inc.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-315  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3 1/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HAW PAD ppm	COMMENTS
							Time	Date		
	0.5								25	Surface reading
	1.5				FILL	DARK BROWN SILT WITH VITRIFIED BLACK SLAG FILL, slightly moist.				
	3									
	4.5				FILL	Fine grey granular Slag FILL, some yellow brown silt with clay, moist to damp. wet to saturated @ 6'				
	7.5									
	9									
	10.5				ML	Olive brown SILT with CLAY, SOFT, MEDIUM PLASTICITY, SL. moist, Becomes more sandy with depth				
	13.5									
	15					Becomes stiff to drill.				

NOTES:

BOTTOM OF BORING @ 16.7

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 6330.001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-316  
 DATE STARTED: 7/8/94  
 DATE COMPLETED: 7/8/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		GMS RAD ppm MPL	COMMENTS
							Time	Date		
	0.5								45	Surface reading
	1.5				FILL	DARK BROWN SILT WITH vitrified BLACK SLAG FILL, friable, dry.				
	3									
	4.5				FILL	Fine grey granular SLAG, stiff to drill, ammonia smell, saturated				
	6									
	7.5									
	9				ML	MEDIUM BROWN SILT WITH CLAY, no plasticity, soft, sl. moist.				
	10.5									
	12									
	13.5									
	15					Becomes stiff @ 15.5'				

NOTES:

Bottom of BORING @ 16'

LOG OF BORING

PROJECT: MOLYCORP, Inc

BORING NUMBER: SB-317

PROJECT NO: 5330.001

DATE STARTED: 7/8/94

LOCATION: WASHINGTON, PA.

DATE COMPLETED: 7/8/94

GEOLOGIST: A. LAFFERTY

GROUNDWATER DEPTH:

DRILLER: TERRA TESTING, Inc.

ELEVATION:

DRILLING/SAMPLING METHOD:

4" O.D. SOLO STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		H.H.H. RAD	COMMENTS
							Time	Date		
	0									
	0.5									surface reading
	1.5				FILL	DARK BROWN SILT with vitrified black slag FILL, friable, sl. moist.				
	3									
	4.5									
	6				ML	Olive brown SILT with clay, med. plasticity, soft, moist				
	7.5									
	9									
	10.5									
	12									
	13.5									
	15					Becomes difficult to drill @ 14.7'				

NOTES:

BOTTOM OF BORING @ 17.5'

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: DJ Maloney DRILLER: Rig #2 DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: SB-318 DATE STARTED: 7/29/94 DATE COMPLETED: 7/29/94 GROUNDWATER DEPTH: ELEVATION:
--	---

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
					Fill	Brown, fine-grained, dry sand w/some gravel, slag; other fill				
	5				"	Black/grey slightly moist slag, fill 4' granular compacted slag moist w/depth 6' drilling gets easier				
	10	9.5			SM	Wet, dk. grey silty sand				
	15				SM	Saturated, dk. grey silty sand w/some small gravel  Drilling stiffens @ 15'				
	18.5				CL	Brownish grey silty clay w/some rounded to sub-angular gravel, moist				
	20					T.D. @ 18.5'				

NOTES:

PAGE 1 OF 1

LOG OF BORING

PROJECT: MOLVORP, Inc.  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFEERY  
 DRILLER: TERRA TESTING, Inc  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-319  
 DATE STARTED: 7/8/94  
 DATE COMPLETED: 7/8/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOUD STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS	
							Time	Date			
	0										
	0.5				FILL	Dark Brown silt with vitrified black slag, with pebbles, bricks FILL sl. moist, friable					
	1.5										
	3										
	4.5				FILL	Fine granular dark grey SLAG, stiff to drier, damp to wet.					
	6										
	7.5										
	9				ML	Olive brown SILT with CLAY, trace sand, sl. moist, medium plasticity, soft. becomes medium brown with depth.					
	10.5										
	12										
	13.5										
	15										
	17.8										

NOTES: Bottom of Boring @ 17.8'

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-320

DATE STARTED: 7/14/94

DATE COMPLETED: 7/14/94

GROUNDWATER DEPTH:

ELEVATION:

4" O.D. SOUD SEM. AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0.5					ASPHALT. SUBBASE				
	1.5				FILL	DARK BROWN SILT WITH SLAG FRAGMENTS, BRICK FRAGS. DRY TO SLIGHTLY MOIST				
	3									
	4.5									
	6				CL	BROWN CLAY WITH SILT tr. SAND. med. plasticity, dry to slightly moist.				
	7.5									
	9									
	10.5					Becomes more silty with fr. weathered shale fragments				
	12									
	13.5					Becomes medium Brown				
	15									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.C01  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-320 (cont'd)  
 DATE STARTED: 7/14/94  
 DATE COMPLETED: 7/14/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGER

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.0									
	16.5				ML	GREY SILT WITH CLAY, BECOMES STIFF TO DRILL, MED. PLASTICITY, MOIST				
	18.0									
	19.5					BOTTOM OF BORING @ 19.2				
	21.0									
	22.5									
	24.0									
	25.5									
	27.0									
	28.5									
	30.0									

NOTES:



LOG OF BORING

PROJECT: *MOLYCORP, INC.*  
 PROJECT NO: *5330.001*  
 LOCATION: *WASHINGTON, PA.*  
 GEOLOGIST: *A. LAFFERTY*  
 DRILLER: *TERRA TESTING, INC.*  
 DRILLING/SAMPLING METHOD: *4" O.D. SOILD STEM AUGERS.*

BORING NUMBER: *38-321*  
 DATE STARTED: *7/12/94*  
 DATE COMPLETED: *7/12/94*  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		RADIOACTIVITY (ppm)	COMMENTS
							Time	Date		
	0.5					ASPHALT; SURFACE			UR	
	1.5				FILL	DARK BROWN SILT WITH VITRIFIED BLACK SLAG FILL, wet @ 2.5'				
	3.0									
	4.5				FILL	OLIVE BROWN SILTY CLAY, low plasticity, soft, slightly moist.				
	6									
	7.5									
	9									
	10.5				FILL	FINE GRANULAR GREY SLAG FILL, saturated, dense,				
	12									
	13.5									
	15				CL	OLIVE BROWN SILTY CLAY, low plasticity, moist				

NOTES:

LOG OF BORING

PROJECT: *MOLY CORP, INC*  
 PROJECT NO: *5330.001*  
 LOCATION: *WASHINGTON, PA*  
 GEOLOGIST:  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: *98-32T (cont. P. 1)*  
 DATE STARTED: *7/12/94*  
 DATE COMPLETED: *7/12/94*  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	<i>15.0</i>					<i>CLAY AS ABOVE -</i>				
	<i>16.5</i>				<i>CL</i>	<i>Grey CLAY, stiff, dry.</i>				
	<i>18</i>					<i>BOTTOM OF BORING 16.8'</i>				
	<i>19.5</i>									
	<i>20</i>									
	<i>21</i>									
	<i>22</i>									
	<i>23</i>									
	<i>24</i>									
	<i>25</i>									
	<i>26</i>									
	<i>27</i>									
	<i>28</i>									
	<i>29</i>									
	<i>30</i>									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-322  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 7/11/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/11/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124%							
	3				CL	brown CLAY w/some silt, dry, stiff-hard; some sand & rock fragments				33 uR/hr @ Surface
	5				CL	As Above, w/ weathered shale & sandstone drilling stiffer w/depth.				
	10									26 uR/hr @ 11.4 ft
	11.5					Total Depth at 11.5 ft				
	15									

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc*  
 PROJECT NO: *5330 - - 00001*  
 LOCATION: *Washington, PA*  
 GEOLOGIST: *P. Anderson*  
 DRILLER: *B. Lawrence*  
 DRILLING/SAMPLING METHOD: *3 1/4" ID Auger*

BORING NUMBER: *58-323*  
 DATE STARTED: *7/11/94*  
 DATE COMPLETED: *7/11/94*  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					3" Topsoil, brown CLAY w/ some silt, stiff, dry, low plasticity				130 uR/hr @ surface
	5				CL	@ 4 ft - hard w/ some fine sand & rock fragments				
	10	10.5			CL	Sandy CLAY & rock fragments				90 uR/hr @ 10 ft
	13				CL	soft CLAY				
	15				-	tan ROCK flow & fragments				
	17					Total Depth @ 17 ft				
	20									

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc.* BORING NUMBER: *SB-324*  
 PROJECT NO: *5330 -- 00001* DATE STARTED: *7/11/94*  
 LOCATION: *Washington, PA* DATE COMPLETED: *7/11/94*  
 GEOLOGIST: *P. Anderson* GROUNDWATER DEPTH:  
 DRILLER: *B. Lawrence* ELEVATION:  
 DRILLING/SAMPLING METHOD: *3 1/4" ID Auger*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					grey SAND w/some silt, sl. moist				220 uR/hr @ surface
	4				Fill	@ 3 ft - rubble, hard, color change to brown				
	5				CL	brown/tan CLAY w/tr. silt, soft, med. plasticity, sl. moist				strong diesel odor
	10									
	15				CL	@ 15 ft - stiffer; CLAY w/some fine sand, moist, less plastic, color change to brown				160 uR/hr @ 15 ft
	17.9									
	20					Total Depth at 17.9 ft				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 — — 00001

BORING NUMBER: SB-325

LOCATION: Washington, PA

DATE STARTED: 7/11/94

GEOLOGIST: P. Anderson

DATE COMPLETED: 7/11/94

DRILLER: B. Lawrence

GROUNDWATER DEPTH:

DRILLING/SAMPLING METHOD: 3 1/4" ID Augers

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
					Fill	grey SAND & CLAY, soft, sl. moist, low plasticity				210 uR/h @ surface
	3				"	SLAG Rubble				
	5									
					CL	grey CLAY w/ tr. fine sand, low plasticity, soft, wet @ 6 ft				Strong hydrocarbon odor (diesel)
	10									
	15									
						@ 17 ft - stiffer drilling				
	20									
	21					Total Depth at 21 ft				
	25									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers

BORING NUMBER: 58-326  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					grey GRAVEL/SLAG (from R.R.), Fill some brown sand & silt, loose, dry SLAG @ 5 ft				48 uR/h @ surface
	5									
	10				CL	brown CLAY w/ some silt & rock fragments, hard, dry @ 14 ft - color change to grey @ 16 ft - clay, med. plast., sl. moist-wet @ 17 ft - stiffer drilling				
	15									
	18.5					Total Depth at 18.5 ft				
	20									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers

BORING NUMBER: SB-327  
 DATE STARTED: 7/11/94  
 DATE COMPLETED: 7/11/94  
 GROUNDWATER DEPTH: 10 ft  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124%							
	5				Fill	fine brown SAND & SILT w/ some R.R. bed gravel, loose, dry @ 5 ft - grey fine sand, loose, dry				45 uR/hr @ surface
	10									
	15				SC	fine grey SAND & CLAY, moist-wet, low plasticity, v. soft,  @ 19 ft - water in SANDY CLAY				? @ 10 ft  hydrocarbon odor  27 uR/hr @ 15 ft
	20									
	22.6									
	25					Total Depth at 22.6 ft				

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: 58-328  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 7/11/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/11/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 124"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5				Fill	fine brown SAND & SILT w/ some slag, dry, med. dense				70 uR/hr @ surface
	10				ML	@ 7ft - color change to grey, sandy @ 11ft - wet				60 uR/hr @ 7ft
	15									
	16									
	20				CL	weathered SHALE rock fragments @ 19ft - stiffer drilling				
	23.5									
	25					Total Depth at 23.5ft				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330--00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD Split Spoon

BORING NUMBER: SG-329  
 DATE STARTED: 7/13/94  
 DATE COMPLETED: 7/13/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	0					asphalt; GRAVEL sub-base, slag			80	
2		18			Fill	lt. grey fine SAND, dk. grey CLAY,				
3	1.5	23	15			tr. glass & brick, dense, hard, dry	8:42	7/13	10	
4		25				fill as above; tr. purple deposit (sulfide?), v. hard	8:46	7/13	10	2 rad
5		85/5"	9		"					
6	3									
7		28				fill, tr. green deposit, fly ash, color change from overall grey to dk. brown, red brick, dense, sl. moist	8:54	7/13	10	
8		18			"					
9	4.5	10	12							
10		9				red brick; brown CLAY & SILT, med. stiff, sl. moist, low plasticity	8:56	7/13	10	2 rad
11		4			CL					
12	6	5	5							
13		3				stiff brown CLAY, low plasticity, dry	9:07	7/13	10	1 rad
14		5			CL					
15	7.5	7	3							
16		7				(2nd attempt) tan/brown CLAY w/ tr. fine sand, hard - v. stiff, dry	9:10	7/13	60	rad may be unreliable due to fill material w/ sample
17		6			CL					
18	9	8	16							
19		5				As Above; becoming grey/orange/brown mottled @ 10 ft	9:26	7/13	10	
20		7			CL					
21	10.5	9	18							
22		5				As Above	9:30	7/13	10	2 rad
23		7			CL					
24	12	9	13							
25		7				brown/dk. brown CLAY, stiff, w/ inclusions of charcoal appearing material, dry	9:38	7/13	12	2 rad
26		6			CL					
27	13.5	9	16							
28		6				As Above	9:42	7/13	10	2 rad
29		5			CL					
30	15	6	10							

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-330  
 PROJECT NO: 5330 - - 00001 DATE STARTED: 7/13/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/13/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124°			asphalt; GRAVEL subbase; brown fine SAND & SILT, dry, dense; @ 3-5 ft - grey/brown SAND, loose, some slag				
	5				Fill					
	7									
	15				CL	grey CLAY w/ silt & fine sand, soft, low plasticity, sl. moist @ 10ft - color change to lt. brown, incr. clay content, med. plasticity, dry @ 15ft - drilling stiffens, clay more friable; incr. sand content, sl. moist				
	15				CL					
	20				SC					
	20.4					Total Depth at 20.4 ft				
	25									

NOTES:

PAGE 1 OF

### LOG OF BORING

PROJECT: <i>Wolycorp, Inc</i> PROJECT NO: <i>5330 - - 00001</i> LOCATION: <i>Washington, PA</i> GEOLOGIST: <i>P. Anderson</i> DRILLER: <i>B. Lawrence</i> DRILLING/SAMPLING METHOD:	BORING NUMBER: <i>SB-331</i> DATE STARTED: <i>7/14/94</i> DATE COMPLETED: <i>7/14/94</i> GROUNDWATER DEPTH: ELEVATION:
--	--

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5				Fill	asphalt/subbase; grey fine SAND, dense, dry, w/ some rounded gravel (all fill) @ 3.5 ft - white slag				
	10				CL	brown/orange brown CLAY w/ tr. silt, soft, med. plasticity, wet-moist; gradual change to hard, dry w/ incr. fine sand				
	15				SC	saturated @ 16.5 ft + 2 ft.				
	19.5					@ 18.5 ft - stiff				
	20					Total Depth at 19.5 ft				

NOTES:

PAGE 1 OF

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 - - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/2" ID Auger / 2" OD split spoon

BORING NUMBER: SB-332  
 DATE STARTED: 7/14/94  
 DATE COMPLETED: 7/14/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	0	40				asphalt/subbase; GRAVEL			60	
2		26			Fill	med-fine, sub-ang - sub-rnd,				
3	1.5	28	16			fine brown SAND, dense, dry	8:02	7/14	10	
4		16			"	As Above, tr. purple			80	2 rad
5		21			"	slag, dense, dry			10	
6	3	17	12				8:04	7/14		
7		13			"	As Above, some			80	
8		11			"	dry grey slag			10	
9	4.5	9	15				8:06	7/14		
10		6				FILL - red brick, RR slag, gravel,			80	2 rad
11		9			"	dense, dry; brown tan CLAY w/			10	
12	6	9	10			some fly ash & fine sub-rnd gravel,	8:13	7/14		
13		spoon			"	med. plast., stiff, sl. moist				
14		bouncing			"	Spoon rebounding from				
15	7.5					material; recovery consist	8:24	7/14		
16		2				of fill from above				
17		2			CL	dk. grey / brown CLAY w/ tr.			80	1 rad
18	9	3	4			silt, soft, med. plasticity,	8:39	7/14	10	
19		2				sl. moist, some fly ash			80	
20		3			CL	mottled brown CLAY w/ tr.			10	
21	10.5	5	12			fine sand & silt;	8:41	7/14		
22		5				soft-stiff, sl. moist-dry			100	
23		7			CL	CLAY as above, tan/brown,			10	
24	12	8	16			stiff-hard w/ depth; incr.	8:50	7/14		
25		5				sand w/ depth			80	2 rad
26		7			CL	As Above, grey/tan/brown			10	
27	13.5	9	13			mottled, hard	8:58	7/14		
28		8							100	1 rad
29		10			CL	orange / brown CLAY,			10	
30	15	14	6			v. stiff	9:02	7/14		

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 - - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-332  
 DATE STARTED:  
 DATE COMPLETED:  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
31	15.2	2				tan CLAY, stiff, low plasticity			100	
32		3			CL					
33	16.5	7	18				9:32	7/14	12	
34		6				fine grey SAND & fine angular GRAVEL w/ some clay, med. dense, saturated			80	
35		6			SP					
36	18	7	18				9:39	7/14	10	
37		2			<del>SS</del>	tan/brown CLAY w/ some sand & angular gravel lenses, low plast. v. soft, moist			100	
38		2			CL					
39	19.5	3	18				9:48	7/14	12	
40		WR				lt. brown CLAY & fine SAND w/ angular gravel & weathered shale, wet			100	2 rad
41		50/5"			CL					
42	21		14				10:00	7/14	12	
						T.D. @ 20.9 ft.				

NOTES:

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 PAGE 1 OF 2

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330-001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:  $\pm 3/4"$  I.D. HOLLOW STEM AUGERS.

BORING NUMBER: SB-333  
 DATE STARTED: 7/15/94  
 DATE COMPLETED: 7/15/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HHR ZAD SPM NR/hr	COMMENTS
							Time	Date		
01	0.5	4				GREY BROWN FINE GRANULAR SLAG, LOOSE, NO. PLASTICITY, SL. MOIST.	0822	7/15/94	90	
02	1	5	15"		FILL					
03	1.5	12								
04	2	19				CONTACTING RED BROWN BRICK WITH GLASS, FILL, MEDIUM DENSE, SLIGHTLY MOIST	0823		90	
05	2.5	12	6"		FILL					
06	3	8								
07	3.5	12				BRICK FILL AS ABOVE.	0825		90	
08	4	8	14"		FILL					
09	4.5	7								
10	5	5				BRICK FILL AS ABOVE.	0827		90	
11	5.5	7	6"		FILL					
12	6	11								
13	6.5	2				BRICK FILL AS ABOVE	0840		90	
14	7	4	1"		FILL					
15	7.5	3								
16	8	2				BOTTOM OF BORING @ 99'	0844			
17	8.5	1	NR							
18	9	3								
	9.5									
	10									
	10.5									
	11									
	11.5									
	12									
	12.5									
	13									
	13.5									
	14									
	14.5									
	15									

NOTES:



LOG OF BORING

PROJECT: PolyCorp, Inc  
 PROJECT NO: 5330-00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers

BORING NUMBER: SB-334  
 DATE STARTED: 7/14/94  
 DATE COMPLETED: 7/14/94  
 GROUNDWATER DEPTH: 4 ft  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5				Fill	grey fine SAND & fine-med. sub-rnd RR slag GRAVEL, loose, dry; incr. sand w/depth. @5ft - color change to dk grey, wet				∇ @ 4ft
	10				CL	lt. brown/tan CLAY, med. plasticity, soft, sl. moist				
	15					@16.4 ft - stiffer drilling				
	16.4									
	18.3				SP SC	brown fine SAND w/some clay, saturated, dense; stiffer				
	20					Total Depth at 18.3 ft				

NOTES:

LOG OF BORING

PROJECT: MOLYCOP, Inc  
 PROJECT NO: 5330-001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: 5B-335

DATE STARTED: 7/14/94  
 DATE COMPLETED: 7/14/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		LAB DATA REF.	COMMENTS
							Time	Date		
	0					GRAVEL				
	0.5					DK. BROWN SILT WITH VITREOUS BLACK SLAG FRAGMENTS, 2x4 hunk of wood.				
	1.5				FILL					
	3				FILL	DARK GREY FINE GRANULAR SLAG, METAL, SMALL VITREOUS BLACK SLAG FRAGMENTS, SLIGHTLY MOIST				
	4.5				FILL	FINE GRANULAR (SAND-SIZED) GREY BROWN SLAG, AMMONIA-LIKE ODOOR, MOIST TO DAMP.				
	6				FILL					
	7.5				FILL					
	9				ML	BROWN SILT WITH CLAY AND SAND, NO PLASTICITY, SATURATED.				
	10.5									
	12					OLIVE BROWN CLAY WITH SILT, MED <del>SEE</del> PLASTICITY, SLIGHTLY MOIST.				
	13.5									
	15									

NOTES:

# LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-885 (cont'd)

DATE STARTED: 7/14/94  
 DATE COMPLETED: 7/14/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.0									
	2					AS ABOVE				
	16.53									
	4									
	5									
	18.6				CL	GREY CLAY, STIFF, DRY				
	7									
	8					BOTTOM OF BORING @ 18.5				
	19.5									
	10									
	11									
	21.12									
	13									
	14									
	22.515									
	15									
	17									
	24.18									
	19									
	20									
	25.51									
	22									
	23									
	27.24									
	25									
	26									
	28.517									
	28									
	29									
	30.30									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 - - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB - 336  
 DATE STARTED: 8/16/94  
 DATE COMPLETED: 8/16/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 15"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	9 8 13	17			Fill	Ammonia odor; dry, loose, grey slag + brown silty sand w/gravel, subangular gravel, brick fragments; fill	7:50	8/16	60	3 rad
2	10 7 3	14			"	Same as above	7:52	8/16	80	3 rad
4	3 7 4	18			"	Same as above, vit. slag + weathered vit. slag fragments; fill; ammonia odor	7:54	8/16	100	3 rad
5	3 3 6	15			ML	Brown & grey clayey silt, dry, damp, + fine gravel	7:55	8/16	80	3 rad
7	1 3 6	18			ML	9" damp brown & grey clayey silt w/granular slag, fill, to black damp granular slag, + brown silty clay	8:12	8/16	150	3 rad
8	4 8	18			SP	2" same as above, contacting damp-moist fine black sand	8:14	8/16	1,000	3 rad
9	13				SP	3" wet fine black sand, to greenish grey fine silt grading to greenish grey silty clay, damp	8:22	8/16	450	3 rad
10	1 1 3	13			ML					
11	3 2				-	No recovery	8:23	8/16	-	0 rad
12	4	0			-					
13	1 3 4	18			CL	2" wet fine black sand, to 11" greenish damp silty clay, to 4" brown fine damp sand, some silt	8:47	8/16	340	3 rad
14	3 4				CL	Same as above	8:49	8/16	100	3 rad
15	4	18			CL					

NOTES:

Continued on next page

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001

LOCATION: Washington, PA

GEOLOGIST: A. Murphy

DRILLER: B. Lawrence

DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-336

DATE STARTED: 8/16/94

(cont'd)

DATE COMPLETED: 8/16/94

GROUNDWATER DEPTH:

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	16	1 1 3	18		SP	Damp fine brown + grey sand	8:57	8/16	80	3 rad
	17	3 9			SP	16" as above, grading to alluvial deposit for 4",				
	18	10	18		AL	damp	8:59	8/16	80	3 rad
	19	7 7 7	18		AL	Wet alluvial deposit, fine sand + subangular gravel	9:06	8/16	80	3 rad
	20	20				6" as above, contacting weathered bedrock, to				
	21	50/ 1	7		BR	dry, grey weathered clay & shale	9:08	8/16	80	2 rad
						T.D. @ 20.1'				

NOTES: AL - Alluvial deposit  
 BR - bedrock

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 — — 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD split spoon

BORING NUMBER: SB-337  
 DATE STARTED: 7/15/94  
 DATE COMPLETED: 7/15/94  
 GROUNDWATER DEPTH: 7.5 ft  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	0	5				topsoil; fine grey SAND, dry, w-sorted - brown SILT & CLAY, vitrified slag, angular gravel, dry, dense-loose	8:18	7/15	90	
2		7			Fill					
3	1.5	21	15							
4		21				grey fine SAND w/tr. brown silt & v. fine SAND, v. dense, hard, sl. moist	8:22	7/15	110	
5		13			"					
6	3	10	13							
7		9				dk. brown/black CLAY, dry, friable, hard, no plasticity	8:24	7/15	100	2 rad
8		50			"					
9	4.5	5	11							
10		31				No Penetration - Difficult Augering	8:35	7/15	—	
11					"					
12	6		—							
13		14				dk. grey/black SAND & fly ash w/some silt, sl. moist, loose-hard	8:54	7/15	100	
14		11			"					
15	7.5	8	18							
16		1				fine black SAND & SILT, saturated (soupy)	8:56	7/15	100	2 rad 7.5 ft
17		1			"					
18	9	1	10							
19		5				fine-med black SAND, saturated, w-sorted; tan/dk. brown SILT & CLAY, soft-v. soft, sl. moist, low plasticity	9:15	7/15	90	
20		3			"					
21	10.5	2	16							
22		2				As Above, grading to tan CLAY, soft, med. plasticity, sl. moist	9:19	7/15	90	2 rad
23		2			"					
24	12	2	8							
25		2				dk. brown/tan mottled CLAY, med. plasticity, soft, sl. moist, - 6" wood	9:29	7/15	85	2 rad
26		5			"					
27	13.5	14	14							
28		4				No Recovery				
29		5			"	Beneath wood	9:37	7/15	—	
30	15	4	—							

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-337  
 DATE STARTED:  
 DATE COMPLETED:  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 118"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
31	15.0	2								
32		3			Fill	grey/black CLAY w/ tr. fine sand, wood, & fly ash, wet, soft, med. plasticity				2 rad
33	16.5	2	12				10:00	7/15	90	
34		2								
35		3			SC	Wood, black SAND & CLAY w/ some brown clay, loose, saturated				2 rad
36	18	2	10				10:30	7/15	90	
37		7				Soft grey CLAY, low plast., sl. moist, 4" wood, fine grey SAND, loose, wet				
38		21								
39	19.5	11	18		CL	hard grey CLAY & weathered shale, dry	10:50	7/15	90	
40		21								
41		50			CL	hard grey CLAY & weathered SHALE				1 rad
	21	—	4				10:54	7/15	90	
						Auger Refusal to 18.9 ft				

NOTES:

2  
 PAGE 1 OF 2

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB - 338

DATE STARTED: 7/18/94  
 DATE COMPLETED: 7/18/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. Hollow Stem Augers.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME RAD DATE	COMMENTS
							Time	Date		
01	0.5	9				6" OF DARK BROWN SILT WITH VITRIFIED BLACK SLAG CONTACTING BROWN TO GREY FINE GRANULAR SLAG WITH OR. ROCK FRAGMENTS, LOOSE, SL. MOIST				
02	1	10			FILL					
03	1.5	11	14"				1108		34	
04	2	14				GREY BROWN SLAG AS ABOVE WITH A 2" WEATHERED LT. GRAY SLAG FRAGMENT MEDIUM DENSE TO VERY DENSE				
05	3	17%	13"		FILL					
06	3						1110		35	
07	4	60%				AS ABOVE AMMONIA ODOR IN CUTTINGS, VERY DENSE				
08	4				FILL					
09	4.5		NR				1113			
10	10	6				5" DK. BROWN SILT WITH VIT. BLACK SLAG, FILL CONTACTING 2.5" DMED BROWN FINE SAND, WET, CONTACTING 3.5" FINE (SILT) DK GRAY TO BLACK SLAG FILL, NO. PLAST. V. LOOSE TO LOOSE				
11	11	5	11"		FILL					
12	6	3					1127		35	DAMP
13	13	1/1								
14	14									
15	7.5	1	NR				1130			
16	15	1/1								
17	17									
18	9	1	NR				1131			
19	19	1				OLIVE BROWN CLAY WITH SILT TR. BLACK ORGANKS, V. SOFT, LOW TO MED. PLASTICITY.				
20	20									
21	10.5	3	8.5"		CL		1140		100	
22	22	2				CLAY AS ABOVE BECOMES LIGHT BROWN WITH DEPTH VERY SOFT TO SOFT, MED. PLAST.				
23	23	2			CL				100	
24	12	3	12"				1150			
25	25	3				3" OF CLAY AS ABOVE GRADING INTO MED. BROWN AND LT. GREY CLAY WITH SILT AND SAND BECOMES ORANGE BROWN WITH DEPTH, FINE SANDY INCLUSION (1/4")				
26	26	3			CL					MED. PLAST, SOFT, SL. MOIST
27	13.5	4	12"				1315		60	
28	28	3				CLAY AS ABOVE				
29	29	2			CL					
30	15	2	10"				1316			

NOTES:



LOG OF BORING

PROJECT: MALYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 3/4" I.D. Hollow Stem Augers.

BORING NUMBER: 58-228 (cont'd)  
 DATE STARTED: 7/18/94  
 DATE COMPLETED: 7/18/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME (RAD FROM 00/HR)	COMMENTS
							Time	Date		
31	15.0	1								
32		1								
33	15.5	1	18"		ML	CLAY AS ABOVE, GRADING INTO 7" MED BROWN SILT WITH FINE SAND, SOME CLAY, DAMP, CONTACTING AL 5" OF SILT WITH CLAY, SAND AND WEATHERED ROCK FRAGMENTS, V. SOFT.	1329		50	DEY
34		16								
35		29	6"		CL	DARK BROWN CLAY, <del>SET</del> VERY STIFF, DEY, WEATHERED SHALE	1332		40	
	18					BOTTOM OF BORING @ 17.94				
	19.5									
	21									
	22.5									
	24									
	25.5									
	27									
	28.5									
	30									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:  
 3/4" I.D. HOLLOW STEM AUGER

BORING NUMBER: SB-339  
 DATE STARTED: 7/19/94  
 DATE COMPLETED: 7/19/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		NINQ 2AD FROM 210 TMR	COMMENTS
							Time	Date		
01	0.5	16								
02	1	30	15"		FILL	DARK BROWN SILT WITH VITRIFIED BLACK SLAG				
03	1.5	21				FILL med. dry to sl. moist. med. dense	0758	7/19/94		
04	2	6								
05	3	6	12"		FILL	Upper 6" as above loosely contacting orange silt with sand with fine rock fragments, sl. moist	0759	7/19/94		
06	3.5	4								
07	4	3								
08	4.5	6	18"		FILL	SILT AS ABOVE, MOIST CONTACTING 6" OF FINE BROWN SANDY SILT, tr. clay	0802	7/19/94	35	
09	5	8				Loose damp.				
10	6	2								
11	6.5	2	18"		FILL	ORANGE BROWN SILT AND SAND WITH SOME FINE GREY GRANULAR SLAG, CONTACTING FINE BLACK SLAG, NO PLAST. SAT.	0805	7/19/94	32	very loose.
12	7	1								
13	7.5	1	16"		FILL	FINE BLACK GRANULAR SLAG AS ABOVE Becomes damp to wet, very loose	0812	7/19/94	100	
14	8	1								
15	8.5	1	15"		FILL	6" SLAG AS ABOVE, CONTACTING 6" OF MED. BROWN AND GREY MOTTLED CLAY, CONTACTING 3" OF GREY SLAG FINE. VERY LOOSE	0815	7/19/94	80	5% LEL 20% O2
16	9	3								
17	9.5	2	8"		CL	OLIVE BROWN CLAY WITH SILT SOFT, LOW PLASTICITY, SL. MOIST. VERY SOFT TO SOFT.	0826	7/19/94		
18	10	3								
19	10.5	4								
20	11	3	NR							
21	11.5	3								
22	12	3								
23	12.5	3								
24	13	2	13"		CL	CLAY AS ABOVE, BECOMES MORE SANDY WITH DEPTH, SOFT	0838	7/19/94	30	
25	13.5	3								
26	14	2	14"		CL	CLAY AS ABOVE BECOMES LESS SANDY THEN BECOMES MOTTLED RED BROWN at 6" from top of spoon. GRADES INTO A BROWN SANDY SILT, tr. clay, low plast, soft, wet	0840	7/19/94	40	
27	14.5	3								
28	15	3								
29										
30										

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330-001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-339 (cont'd)  
 DATE STARTED: 7/19/94  
 DATE COMPLETED: 7/19/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. Hollow Stem Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		FINE SAND ppm	COMMENTS
							Time	Date		
31	15.0	9				BROWN SILTY CLAY WITH COAL, GREY SANDSTONE, BROWN SANDSTONE AND SHALE FRAGS. PEBBLES WEATHERED, DRY STIFF				
32		11								
33	15.5	9	13"		AL		0849	7/19/94	40	
34		12				AS ABOVE CONTACTING 4" BROWN SANDY SILT WITH CLAY, SAT. BELOW DK. BROWN CLAY, CONTACTING 2" OF LIGHT GREY CLAY WITH WEATHERED SHALE FRAGMENTS, STIFF, dry				
35		8	8"		CL					
36	18.0	50					0851	7/19/94	40	
	19.5					BOTTOM OF BORING @ 18ft.				
	19									
	21									
	22									
	22.5									
	24									
	25									
	25.5									
	27									
	28									
	28.5									
	30									

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc PROJECT NO: 5330-00001 LOCATION: Washington, PA GEOLOGIST: A. Murphy DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD split spoon	BORING NUMBER: SB-340 DATE STARTED: 7/19/94 DATE COMPLETED: 7/19/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	0	10				Topsoil; brownish grey granular/vitrified SLAG, dry, loose	8:00	7/19	32	
2		46			Fill					
3	1.5	48	16							
4		28			" As Above	8:03	7/19	30	2 rad	
5		14								
6	2	16	6			0.3' as above; brown/black granular SLAG, damp	8:06	7/19	35	
7		9			"					
8		14								
9	4.5	13	16			brown/black granular SLAG, some vitrified, loose, w/ some sub-rnd. angular gravel & cobbles	8:12	7/19	100	
10		18			"					
11		14								
12	6	14	15			No Recovery	8:21	7/19	-	-
13		-	-	-	-					
14		-	-	-						
15	7.5					Black SILTY CLAY, wet, loose	8:29	7/19	50	1 rad Strong Ammonia odor
16		2			CL					
17		2								
18	9	3	3			dk. brown SILTY CLAY, wet, med. plasticity	8:38	7/19	50	
19		2			CL					
20		2								
21	10.5	3	18			As Above	8:42	7/19	50	
22		2			CL					
23		2								
24	12	2	17			grey SILTY CLAY, wet, w/ ~1" layer of wood	8:50	7/19	30	
25		2			CL					
26		2								
27	13.5	2	18			grey SILTY CLAY/CLAY, wet, w/ some sand & weathered shale, possible alluvial deposit	8:53	7/19	40	Strong Ammonia odor
28		1			CL					
29		1								
30	15	5	15							

NOTES:



LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.

BORING NUMBER: SB-341  
 DATE STARTED: 7/20/94  
 DATE COMPLETED: 7/20/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

DRILLING/SAMPLING METHOD:  
 3 1/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MINI-RAD per 42" sec	COMMENTS
							Time	Date		
01	0.5	"				DARK BROWN SILT WITH vitrified BLACK SLAG FILL				
02		"	7"		FILL			7/20/94	50	
03	1.5	11					1042			
04		10				FILL AS ABOVE CONTACTING 2" olive brown silty clay, DRY				
05		5	10"		FILL			7/20/94	50	
06	3	5					1043			
07		4				VITRIFIED BLACK SLAG FILL WITH 2" weathered SANDSTONE (Brown micaceous) fragments				
08		3	6"		FILL			7/20/94	50	
09	4.5	3					1044			
10	10	2								
11	11	3	NR					7/20/94	50	
12	6 12	3					1059			
13	13	1				MEDIUM BROWN SANDY SILT WITH CLAY, no. plasticity, v. soft, wet to saturated				
14	14	1	15"		ML			7/20/94	50	
15	7.5 15	1					1108			
16	15	1								
17	17	1	NR					7/20/94		
18	9 18	1					1109			
19	19	WGR				SILT AS ABOVE, CONTACTING 6" OF DL. BROWN TO GREY SILT WITH SAND & CLAY, low plasticity, sl. moist.				
20	20	1	6"		AL			7/20/94	50	
21	10.5 21	1					1115			
22	22	2				SILT AS ABOVE				
23	23	3	16"		AL			7/20/94	50	
24	12 24	25					1121			
25	25	9				AS ABOVE				
26	26	13	15"		AL			7/20/94	50	
27	13.5 27	9					1127			
28	28	9				AS ABOVE				
29	29	5	10"		AL			7/20/94	50	
30	15 30	14					1130			

NOTES:

AL - Alluvial Deposit

LOG OF BORING

PROJECT: MOLYCOP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-341 (cont'd)  
 DATE STARTED: 7/20/94  
 DATE COMPLETED: 7/20/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. Hollow Stem Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU RAD ppm us/hr	COMMENTS
							Time	Date		
31	15.0	12								
32	16.5	16 2/3	14"		AL	SILT AS ABOVE contacting 2" OF GREY CLAY AND WEATHERED SHALE	1134	7/20/94	50	
	18.0									
	19.5									
	21.0									
	22.5									
	24.0									
	25.5									
	27.0									
	28.5									
	30.0									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: 58-342  
 DATE STARTED: 7/20/94  
 DATE COMPLETED: 7/20/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		4140 RAD with MPL /ML	COMMENTS
							Time	Date		
	0									
	0.5				FILL	DARK BROWN SILT AND nitrified black bag FILL, sl. moist.				AT SURFACE
	1.5									
	3									
	4.5									
	6				ML	BROWN and GREY SANDY SILT, SOFT, NO. PLASTICITY, WET				
	7.5									
	9									
	10.5									
	12									
	13.5				AL	Dk brown to grey SILT with SAND, tr. clay, sl. moist, low plasticity				
	15									

NOTES:



LOG OF BORING

PROJECT: MOLYCOP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-342 (cont'd)  
 DATE STARTED: 7/20/94  
 DATE COMPLETED: 7/20/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS
							Time	Date		
	15.0									
	16.5				AL					
	18.0					Becomes stiff to drill no auger cuttings.				
	19.5					Bottom of Boring @ 19.2ft				
	21.0									
	22.5									
	24.0									
	25.5									
	27.0									
	28.5									
	30.0									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc

BORING NUMBER: SB-343

PROJECT NO: 5330.001

DATE STARTED: 7/20/94

LOCATION: WASHINGTON, PA

DATE COMPLETED: 7/20/94

GEOLOGIST: A. LAFFERTY

GROUNDWATER DEPTH:

DRILLER: TERRA TESTING, INC.

ELEVATION:

DRILLING/SAMPLING METHOD:

3/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HME RAD APPR 12/94	COMMENTS
							Time	Date		
01	0.5	4				DARK BROWN SILT WITH BLACK VITRIFIED SLAG FRAGMENTS FILL, DRY TO SL. MOIST	0817	7/20/94	34	
02	1	15	15"		FILL					
03	1.5	19								
04	2	18				FINE GRANULAR GREY BROWN SLAG FILL, MOIST	0820	7/20/94	40	
05	2.5	21	15"		FILL					
06	3	20								
07	3.5	30				SLAG AS ABOVE	0821	7/20/94	36	
08	4	50/1	7"		FILL					
09	4.5									
10	5	37				Large vitrified BLACK SLAG BLOCKS WITH BLACK AND GREY FINE GRANULAR SLAG, DAMP. Locally containing 3" of Brown SILTY CLAY TO FINE SAND, low plasticity	0822	7/20/94	40	20.8% O <sub>2</sub> 18% LEL sl. moist. soft
11	5.5	5	17"		FILL					
12	6	5								
13	6.5	1				NR	0840	7/20/94		NO RECOVERY
14	7	2	NR							
15	7.5	3								
16	8	2				CLAY AS ABOVE grading into CLAYEY SILT, v. soft, low plasticity, moist.	0842	7/20/94	35	0% LEL 20% O <sub>2</sub>
17	8.5	2	17"		CL					
18	9	2								
19	9.5	1				SILT AS ABOVE, FINE SAND BECOMING COMMON, low plasticity, v. soft, damp to wet.	0853	7/20/94	35	
20	10	1	15"		ML					
21	10.5	1								
22	11	1				SILT AS ABOVE, no plasticity v. soft, DAMP TO WET.	0857	7/20/94	35	
23	11.5	2	16"		ML					
24	12	3								
25	12.5	1				SANDY SILT AS ABOVE BECOMES MOTTLED MED. BROWN AND GREY. BOTTOM 1" ALL GREY v. soft, NO PLASTICITY, WET	0900	7/20/94	35	
26	13	2	15"		ML					
27	13.5	2								
28	14	17				SILT AS ABOVE, CONTAINING SILTY CLAY WITH SAND AND ROCK FRAGMENTS, weathered pebbles DRY	0905	7/20/94	35	
29	14.5	27	15"		AL					
30	15	29								

NOTES:

AL - ALLUVIAL DEPOSIT

LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 3/4" I.D. HOLLOW STEM AUGERS

BORING NUMBER: SB-313(Cont'd)  
 DATE STARTED: 7/20/94  
 DATE COMPLETED: 7/20/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMR 12AD ppm <i>ultra</i>	COMMENTS
							Time	Date		
31	15.0	5				SILTY CLAY AS ABOVE				
32	16.0	5								
33	16.5	25	16"		AL		0913	7/20/94	40	
34	17.0	10				SILTY CLAY AS ABOVE GRA DING INTO 2" DK. BROWN SILTY CLAY fine sand, med. plast. <sup>dry</sup> <sub>contracting</sub> <sup>of</sup>				
35	18.0	12	11"		AL					
36	18.5	12					0916	7/20/94	35	lt. tan clay stiff, dry.
37	19.0	17				lt tan clay as above Becomes Grey with weathered GREY SHALE				
38	19.5	38 50/A	7"		CL		0930	7/20/94	30	
	19.5					Bottom of Boring @ 19.4				
	20.0									
	21.0									
	22.0									
	22.5									
	23.0									
	24.0									
	25.0									
	25.5									
	26.0									
	27.0									
	28.0									
	28.5									
	29.0									
	30.0									

NOTES:

LOG OF BORING

PROJECT: MOLVACORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-345  
 DATE STARTED: 7/19/94  
 DATE COMPLETED: 7/19/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		Filter PAD Depth Net Vol	COMMENTS
							Time	Date		
01	0.5	6								
02	1	15								
03	1.5	14	10"		FILL	DARK BROWN SILT WITH VITRIFIED BLACK SLAG FILL, GLASS AND BRICK, SL. MOIST Loose to med. dense	1025	7/19/94	32	
04	2	14								
05	3	53	14"		FILL	5" OF SLAG AS ABOVE, CONTACTING Lt grey slag with dark grey SLUG FRAGMENTS, HARD DENSE SL. MOIST	1028	7/19/94	28	
06	3	35								
07	4	13								
08	5	6	9"		FILL	grey to whitish slag as above contacting 3" grey and brown fine sandy slag, contacting 3" fine black slag (fine) moist	1031	7/19/94	28	med. dense
09	4.5	30								
10	6	6								
11	7	10	15"		FILL	BLACK SLAG AS ABOVE, DAMP TO WET, CONTACTING 1" grey brown slag, contacting 5" of dk grey fine granular silt, base damp to wet	1038	7/19/94	30	
12	6	11								
13	7.5	7	7"		FILL	FINE GRANULAR SLAG AS ABOVE, FAINT AMMONIA ODOR, LOOSE	1041	7/19/94	30	
14	18	6								
15	7.5	5								
16	15	1								
17	17	2	18"		CL	8" OF GREY SLAG AS ABOVE CONTACTING 10" OLIVE BROWN SKTY CLAY, VERY SOFT, LOW PLASTICITY, SL. MOIST	1050	7/19/94	28	
18	9	3								
19	10	2								
20	11	3	16"		CL	OLIVE BROWN SILTY CLAY, FINE SAND. SOFT, LOW PLASTICITY, SL. MOIST.	1056	7/19/94		
21	10.5	4								
22	12	2	14"		CL	CLAY AS ABOVE. BECOMES MORE SAND WITH DEPTH SL. MOIST TO MOIST, V. SOFT TO SOFT	1058	7/19/94	28	
23	12	2								
24	12	3								
25	13.5	2	12"		ML	Med. brown and Lt. grey SA-MOTTLED SANDY SILT, tr. clay, V. SOFT TO SOFT, WET.	1112	7/19/94	28	
26	13.5	2								
27	13.5	3								
28	15	2	10"		ML	SANDY SILT AS ABOVE, WET	1113	7/19/94	28	
29	15	2								
30	15	3								

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-345 (cont'd)  
 DATE STARTED: 7/19/94  
 DATE COMPLETED: 7/19/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HND RAD ppm uel/rz	COMMENTS
							Time	Date		
31	15.0	8 6 8	16"		ML / AL	8" OF SANDY SILT AS ABOVE, CONTACTING 8" OF SILTY CLAY WITH WEATHERED PEBBLES & ROCK FRAGMENTS, med. stiff, dry	1123	7/19/94	28	
32	15.5									
33	16.5									
34	17.0	24	7"		AL	As above	1127	7/19/94		
35	17.5	25								
36	18.0	31								
37	18.5	11 28			AL	As above	1141	7/19/94		
38	19.0									
39	19.5									
40	20.0	18 50/4	9"		CL	gray clay with weathered grey shale - stiff to v. stiff, dry	1143	7/19/94		
	21.0					Bottom of Boring @ 19.9ft				
	21.5									
	22.0									
	22.5									
	23.0									
	23.5									
	24.0									
	24.5									
	25.0									
	25.5									
	26.0									
	26.5									
	27.0									
	27.5									
	28.0									
	28.5									
	29.0									
	29.5									
	30.0									

NOTES: AL - ALLUVIAL DEPOSIT

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: DJ Maloney  
 DRILLER: Rig # 2, D. Novotny  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-346  
 DATE STARTED: 7/27/94  
 DATE COMPLETED: 7/27/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
1	8	8	10		Fill	Coarse grained dk. slag, dry, some gravel, some fine brown sand	8:07	7/27	30	
2	22	22			"	Dry, slag, grey				
	30	30								
3	21	21	11				8:11	7/27	20	
4	7	7			<u>moved hole</u>	Grey/black slag, brown sand, dry; 7" slag on top of interval w/ grey, slightly moist sand below	8:25	7/27	50	
	8	8	4							
5	5	5				No recovery				
	2	2								
6	2	2	0				8:35	7/27	N/R	
7	1	1				No recovery				
	1	1	0				8:45	7/27	N/R	
8	1	1				No recovery				
	1	1								
9	1	1	0			Wet, black silty sand, saturated	8:48	7/27	N/R	
10	1	1			SM	Dk. grey, saturated silty sand w/some gravel, subangular gravel	8:58	7/27	30	
	1	1	14							
11	1	1			ML	Saturated dk. grey sandy silt w/some subangular gravel; bottom of interval more cohesive sandy silt/clay	9:00	7/27	50	
	1	1	10			w/some subangular gravel (ng)				
12	1	1			<del>SM</del>	Saturated sandy silt w/some subangular gravel grey to black more cohesive to bottom of interval	9:12	7/27	38	
	1	1	10		ML					
13	1	1								
	1	1								
14	1	1			CL	Brownish grey cohesive clay, med. plasticity	9:20	7/27	38	
	1	1	18							
15	1	1								

NOTES:

Continued on next page



LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001

LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence

DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-346A

DATE STARTED: 8/15/94 (Redrill)

DATE COMPLETED: 8/15/94

GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5				Fill	Grey/black slag & sand, dry, some gravel				
	10				ML	Wet, black silt w/some subangular gravel				
	13.5									
	15				CL	Brownish-grey cohesive clay, some silt.				
	18.4					Bedrock at bottom of boring				
	20					T. D. @ 18.4'				

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: DJ Maloney  
 DRILLER: Rig # 2, Novotny  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-347  
 DATE STARTED: 7/26/94  
 DATE COMPLETED: 7/26/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	3.5				Fill	Gravel w/some sand slag, brown sand w/some silt, dry, slow drilling through slag				
	5				Fill	Grey dry sand w/some slag, moist brown silty sand				
	10				Fill	Brown to grey sandy silt, some slag, moist				
	15									
	20	20.8			CL	Moist grey sandy clay				
						T.D. @ 20.8'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-347  
 DATE STARTED: 8/15/94 (Redrill)  
 DATE COMPLETED: 8/15/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Lithology the same SB-56A (p. 104 of Geology #6)				
	5									
	10									
	15									
	20									
						T.D. @ 20.8'				
						Hole caving as auger is pulled up.				

NOTES:

PAGE 1 OF 1

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330--00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-348  
 DATE STARTED: 7/25/94  
 DATE COMPLETED: 7/25/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1						Fill: grey railroad slag & grey med. sand, loose, slightly moist; some vitrified slag				
2										
3										
4										
5										
6		5.7								
7					CL Dk. grey clay + fine sand; some & fine gravel, low plasticity, soft, wet; becoming more clayey, plastic, less wet w/depth; hydrocarbon odor; stiffer drilling					
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19		18.2								
20					SC	Brown fine sand w/some rock fragments & clay, saturated, dense				
21		20.9								
						T.D. @ 20.9'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB - 349  
 DATE STARTED: 7/25/94  
 DATE COMPLETED: 7/25/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS	
							Time	Date			
0			18"								
1		0.5				Grey slag, loose, dry					
2					Fill	Black slag + cinders, scratched @ 5.6', dry to damp					
3											
4											
5											
6											
7											
8											
9		9.2									
10					CL	Grey clay w/ fine sand, med. plasticity, slight hydrocarbon odor, water @ 9.2'; also softer drilling					
11											
12											
13											
14											
15											
16											
17		17.1									
18						stiffer drilling, little to no cuttings, presumed weathered grey clay shale					
19		18.6									
						T.D. @ 18.6'					

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc*  
 PROJECT NO: *5330 -- 00001*

LOCATION: *Washington, PA*  
 GEOLOGIST: *DJ Maloney*

DRILLER: *Rig #2, D. Novotny*

DRILLING/SAMPLING METHOD: *3/4" ID Auger*

BORING NUMBER: *SB-350*

DATE STARTED: *7/26/94*

DATE COMPLETED: *7/26/94*

GROUNDWATER DEPTH:

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5	4.5			Fill	<i>Brownish grey fine sand @ ~ 1', grey fine sandy slag, wetter w/depth @ 4.5'</i>				
	10				SC	<i>Sandy, moist silty sand w/some fine clay</i>				
	15				CL	<i>Brownish grey clay w/some clay, subangular gravel clusters @ 12.5' greyish silty sand @ 16.8' drill stiffens</i>				
	20	19.3			CL	<i>Dk. grey moist clay, w/some gravel, more moist w/depth, gravel subangular, some fine sand</i>				
						<i>T.D. @ 19.3'</i>				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: DJ Maloney  
 DRILLER: Rig #2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-351  
 DATE STARTED: 7/27/94  
 DATE COMPLETED: 7/27/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	1.5				Fill	Fine, dry brown sand w/ some gravel				
					"	Grey slag; fill gravel w/some fine brown sand, dry				
	5				"	Moist, grey fine-grained sand/slag				
	7.1									
	10				SP	Fine brownish grey sand, moist				
	15				ML	Slightly wet, sandy silt w/some gravel				
						Drill stiffens slightly				
	18.6				CL	Wet grey clay, cohesive				
	20					T.D. @ 18.6'				

NOTES:

## LOG OF BORING

PROJECT: MolyCorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3 1/4" ID Auger	BORING NUMBER: SB-352 DATE STARTED: 7/25/94 DATE COMPLETED: 7/25/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124			Fill				
	4					brown/grey fine SAND & grey SLAG GRAVEL				
	5					SP grey/brown fine SAND becoming clayey @ 6ft; wet @ 6.5 ft				
	10					CL @ 11 ft grey CLAY, med. dense, soft, moist, low plasticity				
	14.5					SC brown CLAY & fine SAND, saturated, dense, stiff				
	19					Total Depth @ 19 ft.				
	20									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 - - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: Rigo # 1 + 2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB - 353

DATE STARTED: 7/27/94  
 DATE COMPLETED: 7/27/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124"							
	5				Fill CL	Vitrified slag (1') then light brown/tan fine-med sand w/some rock fragments, dense, dry increasing clay w/depth, slightly moist @ 9'				
		8.1								
	10				CL	Grey clay w/tr. fine sand, low plasticity, soft, slightly moist, dk. grey				
	15									
		17.2				Stiffer drilling @ 17.2'				
	20					T.D. @ 18.1'				

NOTES:



LOG OF BORING

PROJECT: <i>Molycorp, Inc</i> PROJECT NO: <i>5330 -- 00001</i> LOCATION: <i>Washington, PA</i> GEOLOGIST: <i>DJ Maloney</i> DRILLER: <i>Rig #2</i> DRILLING/SAMPLING METHOD: <i>3/4" ID Auger</i>	BORING NUMBER: <i>SB.354</i> DATE STARTED: <i>7/29/94</i> DATE COMPLETED: <i>7/29/94</i> GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 1/8"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	2.5				FI	Brown, fine-grained, dry sand w/some gravel, slog, fill				
	3.5				"	As above, but coarser-grained slog/fill, dk. grey, slightly moist				
	4.5				ML	Soft brown moist sandy silt				
	5				ML	4.5' - grey slog moist, sandy texture				
	7.5				ML	As above, but more silty Drilling easier @ 7.5'				
	10				ML	Moist, grey/brown, soft clayey silt, some small gravel/sand				
	15				CL	Moist brownish/grey silty clay				
	15.5					Drilling stiffens @ 16.5'				
	18.6				CL	Moist, soft, grey brown clay w/rock fragments (subangular) & gravel (rounded)				
	20					T.D. @ 18.6'				

NOTES:

PAGE 1 OF 1

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-365  
 DATE STARTED: 7/19/94  
 DATE COMPLETED: 7/19/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS
							Time	Date		
	0									
	0.5				FILL	DARK BROWN SILT, WITH BLACK VITRIFIED SLAG AND ROCK FRAGMENTS, FILL, slightly moist				
	1									
	1.5									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									
	11									
	12				CL	BROWN AND GREY SANDY CLAY AND SILT, MOIST TO WET.				
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.C01  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-355 (cont'd)  
 DATE STARTED: 7/19/94  
 DATE COMPLETED: 7/19/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. Solid Stem Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.0									
	16.5				CL	AS ABOVE				
	18.0				CL	GREY CLAY WITH WEATHERED SHALE FRAGMENTS, DRY				
	19.5					BOTTOM OF BORING @ 17.4				
	21.0									
	22.5									
	24.0									
	25.5									
	27.0									
	28.5									
	30.0									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-356  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 7/27/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/27/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: Ergo # 1 + 2 ELEVATION:  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uRh	COMMENTS
							Time	Date		
	0					Fill Brown fine sand + med. + gravel, tr. ferro moly (metallic grey) loose, dry				
	5				Fill SP	Dk. grey/black sand + gravel, wet; rock fragments @ 7'				
	10				CL SC	Clay, med. plasticity ~ 8'-12' dk. grey then increasing fine grey sand, wet, stiff @ 16.5'; very little return of cuttings				
	15									
	18.1									
	20					T.D. @ 18.1'				

NOTES:

PAGE 1 OF 1

LOG OF BORING

PROJECT: <i>Molycorp, Inc</i> PROJECT NO: <i>5330 -- 00001</i> LOCATION: <i>Washington, PA</i> GEOLOGIST: <i>DJMaloney</i> DRILLER: <i>Rig #2</i> DRILLING/SAMPLING METHOD: <i>3/4" ID Auger</i>	BORING NUMBER: <i>SB-357</i> DATE STARTED: <i>7/27/94</i> DATE COMPLETED: <i>7/27/94</i> GROUNDWATER DEPTH: ELEVATION:
---	--

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY /18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5	5.7			Fill	Black slag, dry, coarse grained w/ gravel 1' brown silt sand on top of interval, fill, slag				
					SM	As above Brown, silty sand, slightly moist				
	10				CL	Easier drilling Moist silty clay, brown, some gravel, subangular				
	15									
	20	19.5				Auger refusal @ 19.5'				
						T.D. @ 19.5'				
						Borehole caves during auger removal				

NOTES:

PAGE 1 OF 1

LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-359  
 DATE STARTED: 7/25/94  
 DATE COMPLETED: 7/25/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS	
							Time	Date			
	0		124%								
	1				Fill	RR bed (grey slag)					
	2				SP	Brown fine-med. sand, well-sorted, loose, dry becoming coarse w/v. fine rounded gravel; moist @ 5.5' color change to white/light grey @ 7'; scratch @ 8.7'					
	3										
	4										
	5										
	6										
	7										
	8										
	9										
	10				SC CL	Dark grey clay and fine sand; increasing clay content w/depth, soft, med. plasticity w/depth; saturated to moist Stiff @ 17.5', clay not v. thick or homogeneous					
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18	17.5									
	19				SP	17.5' to 19.8' brn fine sand + rock fragments, wet					
	20	19.8									
						TD @ 19.8'					

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: 5B-360  
 DATE STARTED: 7/15/94  
 DATE COMPLETED: 7/15/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HINT TRAD DATE TIME	COMMENTS
							Time	Date		
	0.5				FILL	BROWN SILT WITH VITRIFIED BLACK SLAG-FILL.				
	1.5				ML	ORANGE BROWN SILT WITH SAND AND ROCK FRAGMENTS.				
	3									
	4.5				ML	DARK BROWN TO GREY SILT WITH CLAY AND FEW ROCK FRAGMENTS				
	7.5									
	9									
	10.5									
	12									
	13.5									
	15									

NOTES:

BOTTOM OF BORING @ 17.4

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 3/4" I.D. Hollow Stem Augers.

BORING NUMBER: EB-362  
 DATE STARTED: 7/15/94  
 DATE COMPLETED: 7/15/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS	
							Time	Date			
	0										
	0.5				ML	DARK BROWN TO ORANGE BROWN SILT WITH SAND, ROCK FRAGMENTS, TR. CLAY DAMP.					
	1										
	1.5										
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	4.5				ML	OLIVE BROWN SILT WITH CLAY, tr. SAND, DAMP TO WET					
	9										
	10										
	11										
	12										
	13										
	14										
	7.5										
	15										
	16										
	17										
	9										
	18										
	19										
	20										
	10.5				ML	GREY SILT, tr. SAND, ROCK FRAGMENTS, weathered grey SHALE					
	21										
	22										
	23										
	12										
	24										
	25										
	26										
	13.5										
	27										
	28										
	29										
	15										
	30										

NOTES: BOTTOM OF BORING @ 16.7.



LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 - - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: Rigs # 1+2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-363  
 DATE STARTED: 7/28/94  
 DATE COMPLETED: 7/28/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
		1			Fill	Slag w/ brown fine sand & silt, dry, dense				
					"	Brown sandy silt w/ some slag				
	5	4.5			"	Wood (old log?) hard drilling				
		5.5			CL	Grey clay w/ some silt, friable low plasticity, soft, slightly moist				
	10									
		13.5								
	15				AL	Alluvial deposit stiffer drilling @ 15.7'				
		16.8								
	20					T.D. @ 16.8'				

NOTES: AL - alluvial deposit

# LOG OF BORING

PROJECT: <i>Molycor, Inc</i> PROJECT NO: <i>5330 - - 00001</i> LOCATION: <i>Washington, PA</i> GEOLOGIST: <i>A. Murphy</i> DRILLER: <i>B. Lawrence</i> DRILLING/SAMPLING METHOD: <i>3/4" ID Auger</i>	BORING NUMBER: <i>SB-363</i> DATE STARTED: <i>8/15/94</i> DATE COMPLETED: <i>8/15/94</i> GROUNDWATER DEPTH: ELEVATION:
--	--

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					<i>Lithology same as SB-363 on page 84 of Geology # 5 logbook</i>				
	5									
	10									
	15									
		16.8								
							<i>T. D. @ 16.8'</i>			
	20									

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB-365  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 7/28/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/28/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: Rigs # 1 + 2 ELEVATION:  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	3'				Fill	Slag, ferro noly (metallic grey) slag i sand (med.) to 2' then brown clayey layer w/rock fragments, dry				
	5				CL	Dk. grey clay, med. plasticity, soft, slightly moist becoming light grey w/depth				
	10					Stiff @ 13.3'				
	13.3'					Wet @ 4'				
	15					T.D. @ 15.4'				

NOTES:

PAGE 1 OF 1

LOG OF BORING

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330--00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD split spoon

BORING NUMBER: SB-366  
 DATE STARTED: 7/21/94  
 DATE COMPLETED: 7/21/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	0	5				dry, loose, brown soil;				2 rad
2		9			Fill	fine-med black SLAG,				
3	1.5	6	9			dry, loose	7:55	7/21		
4		6				As Above w/ red brick				2 rad
5		6			"	fragments				
6	3	15	9				7:57	7/21		
7		3				As Above; grey CLAYEY				
8		3			"	SILT, sl. moist, w/black				
9	4.5	3	14			slag & red brick	8:00	7/21		
10		1				grey/black SLAG w/red brick				
11		2			"	fragments, sl. moist, loose;				
12	6	3	15			grey SILTY CLAY	8:03	7/21		
13		2				wet, loose SLAG; grey/brown				2 rad
14		4			"	CLAYEY SILT; grey				
15	7.5	5	14			medium SAND	8:23	7/21		
16		1				Fine-med grey SAND w/black				
17		3			"	slag, sl. moist; contacting				
18	9	4	16			grey CLAY, stiff, dry	8:25	7/21		
19		2				Rust/brown CLAY, stiff,				2 rad
20		2			CL	sl. moist w/ angular rock				
21	10.5	2	15			fragments	8:33	7/21		
22		1			ML	wet grey SILT grading to				
23		1			<del>CL</del>	rust/brown CLAY grading to				
24	12	1	18			brown/grey fine-med. SILTY	8:35	7/21		
25		WOR			SM	SAND, sl. moist				
26		1			<del>ML</del>	Saturated brown SILTY				2 rad
27	17.5	1	16			SAND grading to CLAYEY	8:43	7/21		
28		2				SILT				
29		1			ML	brown CLAYEY SILT; fine-med				
30	15	6	18			grey SAND; Alluvial deposit;	8:45	7/21		
						mottled SILTY SAND				

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-367  
 DATE STARTED: 7/20/94  
 DATE COMPLETED: 7/20/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124"							
	4				Fill	FILL: black granular slag, brown silt & rock fragments, loose, dry-sl. moist				
	5				ML	grey CLAYEY SILT, wet				
	10					saturated @ 10 ft				
	15	15.8				resistance @ 14.5 ft				
	20					Total Depth at 15.8 ft				

NOTES:

**LOG OF BORING**

PROJECT: *MOLYCORP*  
 PROJECT NO:  
 LOCATION:  
 GEOLOGIST: *A. Lafferty*  
 DRILLER:  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: *SB 368*  
 DATE STARTED: *7/20/94*  
 DATE COMPLETED: *7/20/94*  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0				Fill	Dk Brown silt w/ vitrified black slag fill, and gravel				
		2'			"	Dk grey fine granular slag, moist				
	5				ML	olive Brown to med. brown clayey silt becomes				
		5'			CL	brown silty clay w/ few rock frags.				
	10									
	15	14'			ML	Br. and grey sandy silt, trace clay				
		16'				Bottom of Boring @ 16'				
	20									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-369  
 PROJECT NO: 5 330 — — 00001 DATE STARTED: 7/21/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/21/94  
 GEOLOGIST: A. Murphy GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		12"							
	5				Fill	dk brown SILT w/ vitrified black slag				
	10				ML	brown-grey CLAYEY SILT w/ sand, wet				
	15	15.5								
	20					Total Depth @ 15.5 ft				

NOTES:

PAGE 1 OF



LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-370  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 7/25/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/25/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH: 3 ft  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					grey/brown fine SAND & SILT, loose, dry w/slag				∇ @ 3 ft
	5				Fill					
	6					grey/brown CLAY w/some fine sand, soft, wet				
	10				CL					
	15	15.5				stiff @ 15 ft				
	20					Total Depth @ 15.5 ft				

NOTES: ∇ log can't be done, boring collapsed

PAGE 1 OF

LOG OF BORING

PROJECT: MolyCorp, Inc. BORING NUMBER: SB-371  
 PROJECT NO: 5330 - - 00001 DATE STARTED: 7/25/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/25/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY 124"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					fine grey SAND & grey GRAVEL, dry, loose				no cuttings returned
	5				Fill	slag @ 2 ft				
	6									
	10				SC	grey-brown CLAY & fine SAND, wet, soft, low plasticity, some rock fragments				
	15					stiffer @ 15.5 ft				
	17.1					Total Depth @ 17.1 ft				
	20									

NOTES:

# LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-372  
 DATE STARTED: 7/19/94  
 DATE COMPLETED: 7/19/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0.5					Black vitrified slag and black and grey fine granular slag, FILL, damp.				
	1.5									
	3				FILL					
	4.5									
	6									
	7.5				ML		Brown silt with clay and rock fragments, moist to damp.			
	9									
	10.5									
	12				CL		Brown and green Brown SANDY CLAY WITH SILT, WET			
	13.5									
	15									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:  
 4" O.D. SOLID STEM AUGERS

BORING NUMBER: SB - 372 (cont'd)  
 DATE STARTED: 7/19/94  
 DATE COMPLETED: 7/19/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.9					AS ABOVE				
	2				CL					
	16.53									
	4				CL	Grey clay with shale fragments.				
	5									
	18.6					BOTTOM OF BORING C173				
	7									
	8									
	19.59									
	10									
	11									
	21.12									
	13									
	14									
	22.515									
	15									
	17									
	24.18									
	19									
	20									
	25.51									
	22									
	23									
	27.24									
	25									
	26									
	28.57									
	28									
	29									
	30.30									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" O.D. Split spoon

BORING NUMBER: SB-373  
 DATE STARTED: 7/20/94  
 DATE COMPLETED: 7/20/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	0	3								
2		9			Fill	med-fine brown/gray SLAG w/ little sub-angular				
3	1.5	4	14			coarse gravel & brick frags	8:16	7/20	40	
4		4			"	black SLAG, medium w/ some brick fragments				1 rad
5		2			"					
6	3	4	10		"		8:17	7/20	40	
7		10			"	weathered coarse SLAG, wet				2 rad
8		13			"					
9	4.5	23	6		"		8:23	7/20	45	
10		13			"	black granular SLAG, loose, wet-sl. moist				
11		37			"					
12	6	9	13		"		8:29	7/20	45	
13		6			"	As Above				2 rad
14		6			"					
15	7.5	8	8		"		8:40	7/20	50	
16		6			"	As above, w/ little gravel & brick fragments				
17		3			"					
18	9	3	18		"		8:42	7/20	55	
19		1			-	No Recovery				
20		2			-					
21	10.5	4	-		-		8:51	7/20	-	
22		2			-	No Recovery				
23		2			-					
24	12	4	-		-		8:52	7/20	-	
25		2			"	SLAG as above; brown/black				
26		2			CL	SILTY CLAY, loose, wet				
27	13.5	3	18		CL		9:14	7/20	70	
28		2			CL	orange-brown SILTY CLAY				
29		3			CL					
30	15	4	12		CL		9:16	7/20	60	

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: D J Maloney  
 DRILLER: D. Novotny  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-374  
 DATE STARTED: 7/28/94  
 DATE COMPLETED: 7/28/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	1.5				Fill	Brown sand, slag, fill				
	3.5				"	Dk. grey/black slag/fill, some brown sand, gravel sized slag making drilling slow				
	5				"	More granular slag, brownish grey slag, slightly moist, some brown fine sand				
	10				CL	Brownish grey, cohesive clay slightly moist, more silty w/depth				
	15					Drill stiffens @ 15'				
	17.5				ML	Moist clayey silt, grey w/some rounded to sub-angular gravel, some sand				
	20					T.D. @ 17.5'				

NOTES:

PAGE 1 OF 1

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: DJ Mahney  
 DRILLER: D. Novotny  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-375  
 DATE STARTED: 7/28/94  
 DATE COMPLETED: 7/28/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	2.5				Fill	Dry brown fine sand w/slag, fill				
	5	5.5			"	Slag, slightly moist, black/grey				
	10				CL	As above, moist @ 6' drilling easier Brownish grey silty clay, cohesive, slightly moist				
	15				CL	As above, more moist				
	17.1					Drilling stiffens @ 17.1'				
	19.5				GM	Grey w/rounded to subangular gravel, clayey silt				
	20					T.D. @ 19.5'				

NOTES:

PAGE 1 OF 1



LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-376  
 DATE STARTED: 7/18/94  
 DATE COMPLETED: 7/18/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. Hollow Stem Augers.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MHD RAD ppm W/LR	COMMENTS
							Time	Date		
01	0.5	6								
02	2	10								
03	1.5	4	6"		FILL	DARK BROWN SILT WITH VITRIFIED BLACK SLAG FILL, LOOSE, SL. MOIST	0805	7/18/94	40	
04	4	3								
05	5	2								
06	3	3	3"		FILL	FILL AS ABOVE, ALSO FINE GRANULAR SLAG, STRONG AMMONIA ODOR, VERY LOOSE	0806	7/18/94	40	
07	7	7								
08	8	1								
09	4.5	1	8.5"		FILL	YELLOW AND RED BROWN WEATHERED BRICKS, LOOSE TO V. LOOSE, WET	0809	7/18/94	40	
10	10	1								
11	11	1	3"		FILL	FILL AS ABOVE		7/18/94		O2 20% LEL 0%
12	6	1					0810	7/18/94	38	
13	13	4								
14	14	1								
15	7.5	2	3"		FILL	DARK GREY FINE GRANULAR SLAG AND BRICK AS ABOVE, V. LOOSE, WET.	0822	7/18/94	45	
16	15	3								
17	17	3								
18	9	3	12"		FILL / CL	FINE GREY (SILT) SLAG WITH ROCK FRAGMENTS, DK GREY TO BLACK FINE SLAG, CONTACTING 3' OF GRAY CLAY WITH →	0831	7/18/94	45	SILT, med plasticity
19	19	1								
20	20	2								
21	10.5	3	13"		CL	2" OF GREY SLAG AS ABOVE CONTACTING MED. GREY CLAY, SOME SILT, ROOT, PLANT FRAS, V. SOFT, SL. MOIST, med. plast.	0840	7/18/94	36	
22	22	3								
23	23	3								
24	12	3	12"		CL	CLAY AS ABOVE WITH A 3" FINE SAND LAYER w/ ROCK frags at top, wet, SOFT.	0842	7/18/94	38	O2 20.8% LEL 18%
25	25	2								
26	26	2								
27	13.5	3	18"		ML	MED. BROWN SILT WITH MED TO DARK GREY CLAY, small well rounded pebbles, no. plast. SOFT, wet to SATURATED	0848	7/18/94	40	
28	28	1								
29	29	2								
30	15	3	16"		CL	3" as above contacting a 14. grey and brown mottled CLAY WITH SILT, med. plast. VERY SOFT, SL. MOIST TO MOIST	0850	7/18/94	38	

NOTES:

LOG OF BORING

PROJECT: MOLYCORD, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA.  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: 3/4" I.D. HOLLOW STEM AUGERS.

BORING NUMBER: SB-376 (cont'd)  
 DATE STARTED: 7/18/94  
 DATE COMPLETED: 7/18/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		FINO 2AD ppm w/nc	COMMENTS
							Time	Date		
31	15.0	1								
32	15.5	2								
33	16.5	14	16"		CL/ML	CLAY AS ABOVE BECOMES MORE SANDY. GRADES INTO A BROWN FINE SILT WITH SAND, FC. CLAY BECOMES GREY CONTACTING	0902	7/18/94	40	A BROWN SILT WITH CLAY WITH WOOD AND PEBBLES. VERY SOFT TO STIFF.
34	17.0	12				3" SILT AS ABOVE CONTACTING				
35	17.5	9				GREY BROWN CLAY W/ SILT, WITH shale; coal fragments, stiff, low plast. dry.	0910	7/18/94	38	
36	18.0	13	10"							
37	18.5	28								
38	19.5	30 5/4	NR				0920	7/18/94		
	19.5					BOTTOM OF BORING @ 19.4				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-377  
 PROJECT NO: 5330 — 00001 DATE STARTED: 7/18/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/18/94  
 GEOLOGIST: A. Murphy GROUNDWATER DEPTH:  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers/2" OD split spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1		5				topsoil; coarse-med black SAND & GRAVEL; lt. brown-grey fine SILT; SILT w/ vitrified slag	8:27	7/18	34	
2		14			Fill					
3	1.5	11	18							
4		27				grey med. SAND w/ fine gravel & some black vitrified slag; med. brown SILT w/ some fine granular slag	8:35	7/18	28	2 rad
5		15			"					
6	3	20/0.1'	9							
7		4				No Recovery	8:40	7/18	-	Respoon
8		21			-					
9	4.5	6	0							
10		2				No Recovery	8:46	7/18	-	Respoon
11		2			-					
12	6	1	0							
13		47				med. brown SAND, wet	8:52	7/18	34	2 rad
14		21			SP					
15	7.5	16	9							
16		5				med. brown SILT w/ some sand & clay, wet; black SILTY CLAY	8:55	7/18	34	2 rad
17		7			ML					
18	9	7	9							
19		1				med. SAND w/ some silt, wet; black/brown SILT/SILTY CLAY w/ black wood fragments	9:00	7/18	35	
20		2			SM					
21	10.5	3	18		CL					
22		4				brown med SAND, wet; black SILTY CLAY; dk. grey CLAY	9:10	7/18	35	
23		3			CL					
24	12	4	18							
25		2				grey/black SILTY CLAY; coarse brown SAND w/ cobbles; fine grey CLAY	9:20	7/18	35	
26		3			CL					
27	13.5	3	18							
28		1				dk. brown SILTY CLAY w/ little slag; grey SILT	9:30	7/18	30	
29		3			CL					
30	15	2	18							

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: A. Murphy DRILLER: DRILLING/SAMPLING METHOD:	BORING NUMBER: SB-377 DATE STARTED: DATE COMPLETED: GROUNDWATER DEPTH: ELEVATION:
--	---

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
31	15.5	WR								
32		1			ML	grey-brown CLAYEY SILT w/ some vitrified slag & roots	9:43	7/18	28	
33	16.5	3	14							
34		15								
35		16			CL	grey CLAY; brown SANDY SILT; grey-black vitrified slag w/ some brown silty stringers	9:50	7/18	32	
36	18	5	18							
37		9								2 rad
38		50/0.3'			CL	grey CLAY, hard; weathered SHALE w/ some clayey silt	10:04	7/18	30	
...	19.5		5							
						Bedrock @ 19.5 ft				

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-378  
 DATE STARTED: 7/21/94  
 DATE COMPLETED: 7/21/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGER

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MINI ppm RAD	COMMENTS
							Time	Date		
	0									
	0.5									AT SURFACE
	1.5									
	3									
	4.5									
	6									
	7.5									
	9									
	10.5									
	12									
	13.5									
	15									

FINE GREY BROWN SAND and GREY GRANULAR SLAG FILL, slightly moist  
 BECOMES SATURATED @ 6'  
 BECOMES DARK GREY

ML OLIVE BROWN SILT WITH CLAY, slightly moist.  
 BECOMES MEDIUM BROWN SANDY SILT tr. clay, saturated no. plasticity

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-378 cont'd

DATE STARTED:  
 DATE COMPLETED:  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS
							Time	Date		
	15 0									
	16.5					AS ABOVE				
	18 6				CL	Brown Grey CLAY. some silt, stiff. low plasticity dry				
	19.5					Bottom of Boring 18.3 ft.				
	21 12									
	22.5									
	24 18									
	25.5									
	27 24									
	28.5									
	30 30									

NOTES:

LOG OF BORING

PROJECT: MOLYCORD, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-379  
 DATE STARTED: 7/21/94  
 DATE COMPLETED: 7/21/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. HOLLOW STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME PAD NO./hr	COMMENTS
							Time	Date		
01	0.5	5				Upper 3" - DARK BROWN SILT w/gravel				
02	1	7	6"		FILL	DARK BROWN AND GREY SANDY SLAG FILL, sl. moist.	med. s	iff to sh	30	0753
03	1.5	10								
04	2	10								
05	2.5	9	13"		FILL	SANDY SLAG-FILL AS ABOVE, STIFF			30	0755
06	3	6								
07	3.5	3								
08	4	1	10"		FILL	SLAG AS ABOVE CONTACTING 2" OF Orange and DK grey CLAY FILL, very soft to soft			38	0756
09	4.5	1								
10	5	1	15"		FILL	Orange clay FILL WITH SILT, SAND, ROCK & BRICK fragments, wet contacting 2" of DK grey fine gran. SLAG, v. soft.			26	0806
11	6	1								
12	6.5	1	18"		FILL	FIRE CLAY AS ABOVE VERY SOFT			25	0813
13	7	wor								
14	7.5	0.5 1/2	18"		FILL	FIRE CLAY AS ABOVE VERY SOFT			25	0813
15	8	wor								
16	8.5	0.5 1/2	18"		FILL	FIRE CLAY AS ABOVE VERY SOFT			25	40% LEL
17	9	0.5 1/2								
18	9.5	1	15"		CL	FIRE CLAY AS ABOVE CONTACTING 4" OF olive brown clay w/silt, tr. sand, sl. moist. low plast. soft			28	0843
19	10	2								
20	10.5	3	5"		CL	OLIVE BROWN CLAY AS ABOVE, SO VERY SOFT			26	0845
21	11	2								
22	11.5	2	14"		CL	CLAY AS ABOVE, Lt. tan sand common grading into 0.4' of olive brown clay very soft			26	0853
23	12	2								
24	12.5	2								
25	13	2	NR		CL	CLAY AS ABOVE VERY SOFT				
26	13.5	2								
27	14	2								
28	14.5	2								
29	15	2								
30	15.5	2								

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: 5B-379  
 DATE STARTED: 7/21/94  
 DATE COMPLETED: 7/21/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME DAD PPM u/g/ml	COMMENTS
							Time	Date		
31	15.0	2				2' as above, contacting				
32		3	6"		AL	Brown Grey CLAY with SILT				
33	15.5	4				rock fragments, weathered Pebbles, dry, SOFT			26	
34		4				4" as above contacting.				
35		6	6"		CL	2" of tan and lt. grey				
36	18.0	7				clay, stiff, dry,			26	
37		27	59/3			CLAY as above grading into weathered grey shale			26	
	19.5					BOTTOM OF BORING @ 18.84				
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

AL - Alluvial Deposit



LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, Inc.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-380  
 DATE STARTED: 7/21/94  
 DATE COMPLETED: 7/21/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	0.5				FILL	Vitrified Black slag and Cinders FILL, sl. moist.				
	1.5									
	3									
	4.5				FILL	Orange brown CLAY with SILT, SAND, BRICK Fragments (FIRE CLAY?)				
	6									
	7.5									
	9									
	10.5				FILL	Grey to grey brown SAND FILL, SATURATED				
	12									
	13.5					Brown SILT with SAND, tr. clay, wet to saturated, no plasticity				
	15									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD: -

BORING NUMBER: SB-380 cont'd  
 DATE STARTED: 7/21/94  
 DATE COMPLETED: 7/21/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.9									
	16.5					As above.				
	18.6				CL	Grey CLAY with some SILT, STIFF, low plasticity				
	19.5					BOTTOM OF BORING @ 19.5				
	21.12									
	22.5									
	24.18									
	25.5									
	27.24									
	28.5									
	30.40									

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330--00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: 5B-381 DATE STARTED: 7/26/94 DATE COMPLETED: 7/26/94 GROUNDWATER DEPTH: ELEVATION:
--	---

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0	4								
	1	4			Fill	Brown fine sand + silt w/ some clay (cohesive, hard) otherwise, med. dense, dry, tr. ferromagn. slag (metall. grey), plant roots	8:16	7/26	18	3 rad
	2	9	9							
	3	6								
	3	10	11		"	Glass, brown fine sand, silt + tr. clay, med. dense, dry, tr. red brick	8:18	7/26	18	2 rad
	4	2			"	As above, (4") then 8" th. brown tan coarse sand well sorted, loose dry contacting 4" dt. brown coarse sand all dry (slag)	8:19	7/26	18	3 rad
	5	1	16		"	As above, little recovery				(57-60)
	6	2			"	As above, little recovery	8:26	7/26	20	1 rad
	7	2			"	As above, increased gravel size slag + moisture w/ depth (railroad slag)				
	7	1			"	As above; increased gravel size slag + moisture w/ depth (railroad slag)	8:32	7/26	18	2 rad
	8	1			"	As above, wet @ spoon bottom				
	8	1	12		"	As above, wet @ spoon bottom	8:34	7/26	18	2 rad
	9	2			"	As above, saturated, water @ 9'				(108-114)
	9	1			"	As above, saturated, water @ 9'	8:44	7/26	18	1 rad
	10	1	3		"	As above, saturated, water @ 9'				
	11	2			"	Slag/clay transition; strong hydrocarbon odor, visible black contamination contacting				(132-144)
	11	2			"	Slag/clay transition; strong hydrocarbon odor, visible black contamination contacting				
	12	2	4		CL	grey clay, soft, low plasticity, moist	8:46	7/26	18	1 rad / 1 hydrocarbon
	13	3			CL	Grey clay w/tr. silt, soft to med. stiff, med. plasticity, slightly moist stained black for 6" (top)				
	13	4			CL	Grey clay w/tr. silt, soft to med. stiff, med. plasticity, slightly moist stained black for 6" (top)	9:05	7/26	18	3 rad
	13	5	12		CL	Grey clay w/tr. silt, soft to med. stiff, med. plasticity, slightly moist stained black for 6" (top)				
	14	2				No recovery				(174-180 from next spoon)
	14	3				No recovery				
	15	2				No recovery	9:10	7/26	-	1 rad

NOTES:

continues on next page

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-381  
 DATE STARTED: 7/26/94 (continued)  
 DATE COMPLETED: 7/26/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 10"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	16	3 2 3	3		CL	Grey/brown clay, soft, med. plasticity, slightly moist, tr. fine sand @ bottom	9:18	7/26	20	no samples
	17	3 5			CL	As above, some fine sand, light brown clay				
	18	3	8				9:22	7/26	-	
	19	17 58 5	14		CL	Mottled brown clay w/some fine sand, soft to stiff; 0.4' layer of "some" sand, wet; clay is low plasticity; slightly moist	9:32	7/26	-	
	20		12		GC	Gravel (s to med., med) + clay w/ some fine sand, dk. grey, loose, sat. contacting 0.3' alluvial deposit	9:37	7/26	-	
						contacting 0.4' grey hard clay + weathered shale, dry				
						T.D. @ 20.5'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: DJ Maloney  
 DRILLER: Rig #1  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-382  
 DATE STARTED: 7/26/94  
 DATE COMPLETED: 7/26/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY /18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Black slag, fill, coarse sand, dry, some gravel @ wetter depth Fill				
	5									
	10									
						Moist clay w/some fine sand, med. plasticity decreasing w/depth, strong hydrocarbon odor CL				
	15									
	18.7									
	20					Moist clay w/some gravel rounded to subangular clusters CL				
	20.9									
						T.D. @ 20.9'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: 383  
 DATE STARTED: 7/26/94  
 DATE COMPLETED: 7/26/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		18"							
	5				Fill	Fine light gray/brown sand w/some silt; railroad slag at top; dense, dry; little return of cuttings: 10.5'-11.2' slag, wood ~5'-10' coarse, dark brown sand + fine slag gravel, slightly moist				
	10									
	11.5									
	15				CL	11.5'-18.2' grey clay; fine sand? low plasticity				
	18.2					Stiff				
	20				GC	Angular fine gravel; clay w/some sand, wet				
	21.8					T.D. @ 21.8'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-385  
 DATE STARTED: 8/11/94  
 DATE COMPLETED: 8/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 1/8"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Black, grey slag w/some sand, brick frll, damp-moist				
	5				Fill					
	10					Brown/grey, sandy grey silt & clay				
	15				ML					
	20	19.9			CL	Moist, wet, weathered clay/shale				
						T.D. @ 19.9'				

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc  
 PROJECT NO: 5330 - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger  
 BORING NUMBER: SB - 386  
 DATE STARTED: 8/11/94  
 DATE COMPLETED: 8/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per ft	RECO. VERY NO.	PRO. FILE CLASS	MATERIAL DESCRIPTION	COLLECTION		COMMENTS
						Time	Date	
	0							
	1	3	16.5		Fill	8:04	8/11	3 rad
	2	11			"	8:05	8/11	3 rad
	3	8			"	8:07	8/11	3 rad
	4	14			"			
	5	5	37		"			
	6	5	51		"	8:10	8/11	2 rad
	7				—			
	8	10			"			
	9	11			"	10:29	8/11	3 rad
	10	2			"	10:34	8/11	3 rad
	11	2			"			
	12	4			"	10:37	8/11	3 rad
	13	3			"			
	14	6			"	10:40	8/11	2 rad
	15	3			"	10:45	8/11	3 rad

(Continued on next page)

NOTES:



LOG OF BORING

PROJECT: MolyCorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-386  
 DATE STARTED: 8/11/94  
 DATE COMPLETED: 8/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 118"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	16	1 1 3	18		CL	12" grey wet clay, some silt, brown silt, some clay	10:57	8/11	50	3 rad
	17	2								
	18	2 2 4	18		SP	6" as above, grading to 6" fine grey sand, 4" alluvial deposit - brown mottled fine sand, 2" grey clay, some silt	11:00	8/11	50	3 rad
	19	2 3 4	18		AL	Wet grey silt, some clay grading to fine wet grey sand, some silt; 6" brown alluvial deposit	11:06	8/11	50	3 rad
	20	3								
	21	7 13	18		AL	13" wet brown alluvial deposit; dry, med. grey weathered bedrock clay/shale	11:08	8/11	50	3 rad
						T.D. @ 21'				

NOTES: AL - Alluvial deposit

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-387  
 DATE STARTED: 8/11/94  
 DATE COMPLETED: 8/11/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Fill Cuttings are fine-grained sand size black fill, dry, loose				
	5									
	10						Soft @ 10'			
						CL Brown clay, some silt				
	15									
						Stiffened @ 19'				
	20					T.D. @ 21'				

NOTES:

PAGE 1 OF /

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: A. Murphy DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: SB-388 DATE STARTED: 8/10/94 DATE COMPLETED: 8/10/94 GROUNDWATER DEPTH: ELEVATION:
--	---

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		100%							
	5				Fill	Fill Cuttings are black, dry, loose, fine sand + gravel fill				
	8.5					@ 8.5' softens up				
	10									
	15									no recovery
	19					stiffened at 19'				
	20					T.D. @ 20.3'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-389  
 DATE STARTED: 8/10/94  
 DATE COMPLETED: 8/10/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		18							
	1	2 4 14	18		Fill	Dry, loose black slag; fill fine sand size w/gravel + wood, roots, brick fragments, fine boron slag	7:58	8/10	50	3 rad
	2	8 9 10	8		4	Same as above	7:59	8/10	50	2 rad
	4	5 8 9	18		"	Dry, loose grey fine boron slag + fill as above	8:08	8/10	50	3 rad
	5	11 14			"	Dry, compacted fill, black slag, green & brown slag				
	6	5 1/2	18		"		8:10	8/10	50	3 rad
	7	5 1/2 12	9		"	Black, dry, loose compacted fill, fine sand size w/brick out of black fill, hard compacted fill @ 7'	8:14	8/10	50	2 rad
	8	2 4			"	Black, damp, loose fine sand size fill, slag granular, weathered slag, + brick fragments				
	9	6	6		"		8:19	8/10	50	1 rad
	10	1 2 2	18		"	4" weathered brick & fill as above, but damp, contacting fine sand size, wet light tan color fill for 4" contacting	8:28	8/10	50	3 rad
	11	4				dry grey clay, some silt				
	12	4 7	12		CL	Grey black clay, some silt, med. plasticity, dry	8:30	8/10	50	2 rad
	13	2 3 5	10		CL SP	Grey silty clay for 8" contacting brown fine sand, dry	8:35	8/10	40	2 rad
	14	4			CL	Wet grey soft clay, some silt grading to a grey clay				
	15	4 5	18		CL		8:38	8/10	40	3 rad

NOTES:

Continued on next page

LOG OF BORING

PROJECT: MolyCorp, Inc  
 PROJECT NO: 5330 -- 00001

LOCATION: Washington, PA

GEOLOGIST: A. Murphy

DRILLER: B. Lawrence

DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB-389  
 (cont'd)

DATE STARTED: 8/10/94

DATE COMPLETED: 8/10/94

GROUNDWATER DEPTH:

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	16	2 2 4	18		CL SM	6" damp grey clay, some silt grading to a grey to brown silt at 9-12" contacting sand, some silt @ 16"	9:02	8/10	40	3 rad
	17	2 3			SP	Wet sand, some silt-mottled colored sand, i.e., alluvial deposit				
	18	2	12				9:04	8/10	40	2 rad
	19	3 8 18	18		SP	Wet, loose, brown fine sand, some pebbles - alluvial deposit				
	20	34					9:10	8/10	40	3 rad
	21	60	12		AL	Alluvial deposit for 4" contacting grey weathered shale - bedrock				
	21	-					9:14	8/10	40	2 rad
						T.D. @ 20.5'				

NOTES: -AL - Alluvial deposit

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-390  
 DATE STARTED: 8/10/94  
 DATE COMPLETED: 8/10/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Fill Cuttings are dry, loose, black fill, sand size granular slag				
	5				Fill					
		3.7								
	10				CL	Soft clay, some silt				
	15									
	20	19.8				Stiff @ 19.8				
						T.D. @ 20.7'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: A. Murphy DRILLER: B. Lawrence + Lambert Drilling Co. DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: SB-391 DATE STARTED: 8/1/94 DATE COMPLETED: 8/9/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		18"							
	5				Fill	Fill to 8.5' with wood, dry, loose black fine sand w/fine gravel				
	8.5									
	10				ML	Brown silt, some clay				
	15									
	19.5					stiff @ 19.5'				
	20					T.D. @ 21.4'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Rig #1 + Lambert Drilling Co.  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-392  
 DATE STARTED: 8/9/94  
 DATE COMPLETED: 8/9/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		18"							
	5				Fill	Fill to 8.1' Cuttings appear to be ferro-boron slag				
	8.1									
	10				ML	Stiffened cuttings are brown & grey, damp silt, some clay				
	15									
	12.7									
	20					T.D. @ 20.8'				

NOTES:



LOG OF BORING

<p>PROJECT: <i>Molycorp, Inc</i>          PROJECT NO: <i>5330 -- 00001</i>          LOCATION: <i>Washington, PA</i>          GEOLOGIST: <i>DJ Mabney</i>          DRILLER: <i>Rig # 2</i>          DRILLING/SAMPLING METHOD: <i>3 1/4" ID Auger</i></p>	<p>BORING NUMBER: <i>SB- 393</i>          DATE STARTED: <i>7/29/94</i>          DATE COMPLETED: <i>7/29/94</i>          GROUNDWATER DEPTH:          ELEVATION:</p>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		18"			<i>Light brown/tan silica sand, dry coarse-grained moist w/depth ~4.5', Some black slag</i>				
	5				<i>Fill</i>					
	10									
	15				<i>CL</i>		<i>Dry, cohesive, brown, clay</i>			
	16.5					<i>Drilling stiffens @ 16.5'</i>				
	20				<i>CL</i>	<i>Soft, brownish/red silty clay, moist w/some small gravel sized fragments</i>				
	21.5					<i>T.D. @ 21.5'</i>				

NOTES:

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LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-394  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 7/29/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/29/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: Rigs 1 & 2 ELEVATION:  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5				Fill	Slag @ 1' brown sand (fine & silt), loose @ 1' moist after slag (1-2') 1s brown med. sand, well sorted w/tr. round fine gravel (slag) dense color				
	10					Change to grey & white @ 6.1' - 9.2', white to grey, saturated med. sand, well sorted @ 9.2'				
	12.5									
	15				CL	Grey clay, med. plasticity slightly moist				
	18.6					Stiffer drilling @ 18.6'				
	19.1				SC					
	20					Brown sand w/clay & rock fragments, saturated, med. dense T.D. @ 19.1'				

NOTES:

LOG OF BORING

PROJECT: <i>Molycorp, Inc.</i> PROJECT NO: <i>5330 - - 00001</i> LOCATION: <i>Washington, PA</i> GEOLOGIST: <i>P. Anderson</i> DRILLER: <i>Rigs 1+2</i> DRILLING/SAMPLING METHOD: <i>3/4" ID Auger</i>	BORING NUMBER: <i>SB-395</i> DATE STARTED: <i>7/29/94</i> DATE COMPLETED: <i>7/29/94</i> GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CFM uR/h	COMMENTS
							Time	Date		
	0									
	5				Fill	Slag (vitrified), tan/light brown fine sand & silt, dry, loose				
	6.5				CL	6.5' - grey clay? w/ fine sand, wet; no return of cuttings				
	10									
	15									no recovery of cuttings
	18.7									stiffer drilling @ 18.7'
	20									T.D. @ 20.1'

NOTES:

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LOG OF BORING

PROJECT: Molycorp, Inc. PROJECT NO: 5330 - - 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: Rigs # 1+2 DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: SB-396 DATE STARTED: 7/29/94 DATE COMPLETED: 7/29/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY (%)	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		124"			Fill Brick, slag, glass, grey fine sand; silt, loose, dry				
	5	6.0								
	10				CL		Gray clay as before (?) no cuttings			
	15	16.8								
	20	20.7			AL	Stiffer drilling @ 19.5' Alluvial deposit				
							T.D. @ 20.7'			

NOTES: AL - Alluvial deposit

LOG OF BORING

PROJECT: Molycorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: Rigs # 1 + 2 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger	BORING NUMBER: SB-397 DATE STARTED: 7/27/94 DATE COMPLETED: 7/27/94 GROUNDWATER DEPTH: ELEVATION:
--	---

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	1	3			Fill	Slag (gray; white, gravel sized med. to fine, loose, dry contacting 6" dk. brown fine sand, well sorted, w/tr wood, loose, dry	8:06	7/27	15	3 rad
	2	2								
	3	3	13							
	2	2			"	As above	8:07	7/27	20	2 rad
	3	2	10							
	4	2								
	4	2			"	Slag as above, loose, dry	8:08	7/27	18	3 rad
	5	2								
	6	3	12							
	5	1			"	As above, wet	8:22	7/27	18	2 rad
	6	1	10							
	7	1								
	7	1			"	As above, wet	8:29	7/27	18	1 rad
	8	1	5							
	9	1								
	8	1			"	Slag, white chunks, larger size, wet	8:30	7/27	18	2 rad
	9	4	9							
	10	5								
	10	2			CL	Slag (?) contacting brown to grey clay; med. plasticity, slightly moist w/tr silt, soft	8:39	7/27	18	3 rad
	11	2	14							
	12	2								
	11	1			-	No recovery	8:41	7/27	-	-
	12	2	-							
	13	1								
	13	WR			-	No recovery	8:50	7/27	-	-
	14	1								
	15	1								
	14	WR			CL	Clay, as before, little recovery, clay too soft to enter spoon	8:52	7/27	-	1 rad
	15	3								

NOTES:

Continued on next page

LOG OF BORING

PROJECT: MolyCorp, Inc.  
PROJECT NO: 5330 - - 00001

LOCATION: Washington, PA  
GEOLOGIST: P. Anderson  
DRILLER: B. Lawrence

DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-397 (cont'd)

DATE STARTED: 7/27/94

DATE COMPLETED: 7/27/94

GROUNDWATER DEPTH:

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM U/F/H	COMMENTS
							Time	Date		
	0		124"							
	1	1			CL	Gray clay contacting fine (4") grey sand + wood, loose, wet				
	16	1				contacting clay as above, soft, wet w/some fine sand contacting 2" alluvial deposit	9:12	7/27	18	3 rad
	12	5								
	18	7	3		AL	Alluvial deposit as above	9:15	7/27	18	1 rad
	19	8								
	19	9			SP	Fine & gravel + fine brown sand, tr. clay, saturated				
		12	16				9:25	7/27	18	3 rad
	20	11			SP	As above grading into brown hard clay then grey hard clay + weathered shale, dry				
		14								
	21	50	16		BR		9:29	7/27	18	3 rad
						T.D. @ 20.9'				

NOTES: AL - Alluvial deposit  
BR - bedrock

LOG OF BORING

PROJECT: Molycorp, Inc.  
PROJECT NO: 5330 - - 00001

LOCATION: Washington, PA  
GEOLOGIST: P. Anderson

DRILLER: Rigs 1 & 2

DRILLING/SAMPLING METHOD: 3 1/4" ID Auger

BORING NUMBER: SB - 398

DATE STARTED: 7/28/94

DATE COMPLETED: 7/28/94

GROUNDWATER DEPTH:

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5				Fill	3" topsoil then black, dark grey med. to fine sand & med. to fine slag gravel, med. dense, dry to slightly moist becoming wet,				
	10									
	15				CL	clayey; grey @ 14', color change to brown clay + fine sand, moist,				
	18					hydrocarbon odor @ 16'				
	20				CL	Brown clay w/ some silt; fine sub <sub>z</sub> to sub med. rock fragments, low plasticity, soft, slightly moist gradually becoming hard, dry stiffer driller @ 24'				
	25									
	26.2									
	30					T.D. @ 26.2'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: DJ Maloney  
 DRILLER: Rig #2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-399  
 DATE STARTED: 7/28/94  
 DATE COMPLETED: 7/28/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uRh	COMMENTS
							Time	Date		
	0					Fill Dk. grey sand, gravel, fill, dry, black sand/cinder, dry				
	5	5.5								
					"	As above, w/more gravel				
	10				"	As above, moist, black/dk. grey fill, sand, gravel				
	15									
		17.7				Drilling stiffens @ 17.7'				
		19.5			G-P	Moist coarse gravel, black sand, some gravel				
	20									
					CL	Olive brown silty clay, slightly moist w/some rock fragments, weathered bedrock				
	25									
		28.8								
	30					T.D. @ 28.8'				

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-400  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 7/29/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/29/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: Rigs 1+2 ELEVATION:  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 124°	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	2				Fill	Slag, railroad spur fill: grey coarse sand & grey med. gravel (subround, pitted), loose, dry to moist;				
	4									
	6									
	8									
	10									
	12									
	14									
	16									
	18									
	20									
	22	22			SP	black sand & pea gravel @ 16'				
	24				CL	Dk. grey clay w/ fine sand, moist to wet, low plasticity to med. plasticity; strong hydrocarbon odor (oil)				
	26									
	28									
	30									
	32	31			SC	stiffer drilling; light grey sand & clay, saturated				
	34	33.7								
						T.D. @ 33.7'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: DJ Maloney  
 DRILLER: Rig #2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-401  
 DATE STARTED: 7/29/94  
 DATE COMPLETED: 7/29/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS	
							Time	Date			
	0					Fill Dry brown silica sand w/ some gravel, fill, slag - some glass, moist w/ depth					
	5										
	10				ML Grey, moist clayey silt some sand						
	15										
	16.5						Drilling stiffens @ 16.5'				
	19.7				CL Grey to olive brown silty clay w/ some small fragments (gravel) soft, moist						
	20					T.D. @ 19.7'					

NOTES:

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LOG OF BORING

PROJECT: MolyCorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: A. Murphy DRILLER: Rig #2 DRILLING/SAMPLING METHOD: 3 1/2" ID Auger	BORING NUMBER: SB-412 DATE STARTED: 8/5/94 DATE COMPLETED: 8/5/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS	
							Time	Date			
	0	0.3				Blacktop					
	1				Fill	Slag, gravel, rock fragments w/brown sand dry					
	2										
	3				CL	Orange brown silty clay w/some grey, damp					
	4										
	5										
	6										
	7										
	8										
	9				ML	Tan brown clayey silt + sand wet.					
	10										
	11										
	12										
	13				CL	Grey silty clay w/weathered shale fragments.					
	14										
	15										
T.D. @ 15.1'											

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: ?  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-413  
 DATE STARTED: 8/5/94  
 DATE COMPLETED: 8/5/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 1ft	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS	
							Time	Date			
	0	0.3			—	Blacktop					
	1				Fill	Greenish grey slag, gravel, dry					
	2				SP	Brown silt + sand w/ pebbles + rock fragments, gravel, dry					
	3										
	4										
	5				CL	Orange brown + grey silty clay w/some sand, damp					
	6										
	7										
	8										
	9										
	10										
	11										
	12	11.8			BR	Weathered grey shale at bottom					
						T.D. @ 11.8'					

NOTES: BR - bedrock

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Rig # 2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB- 414  
 DATE STARTED: 8/4/94  
 DATE COMPLETED: 8/4/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
1		24 32	12		Fill	0.3' blacktop Very dry, black weathered, fine sand + weathered dry grey clay, fill, loose-subbase for blacktop	8:20	8/4		2 rad
2		23 4	3		"	Black fine-med. sand, dry, loose w/subrounded pebbles, fill	8:22	8/4		1 rad
3		5			"					
4		2 1 2	6.5		"	Black, dry, loose, fine sand & gravel	8:29	8/4		1 rad
5		1			"					
6		2 3	18		ML	Damp, grey silt, some clay contacting tan brown clayey silt w/rusty brown patches, moist @ 14"; bottom 2" damp	8:32	8/4		3 rad
7		2 2 3	16		CL	2" dry clayey silt, moist contacting tan brown silty clay, dry, moderate plasticity	8:38	8/4		3 rad
8		2 4			CL					
9		7	18		CL	Wet tan brown silt contacting silty clay at 14"	8:41	8/4		3 rad
10		5 7 6	18		SP AL	16" wet med. brown fine sand contacting 2" alluvial deposit	8:49	8/4		3 rad
11										
12		50/ 4	0				8:51	8/4		
						T.D. @ 10.9'				

NOTES: AL - alluvial deposit

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Rig #2  
 DRILLING/SAMPLING METHOD: 5" OD auger

BORING NUMBER: SB-415  
 DATE STARTED: 8/4/94  
 DATE COMPLETED: 8/4/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS.	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0		100%							
	0.3					Black top				
	1				Fill	Grey fine slag & gravel w/some subrounded pebbles				
	2									
	3				ML	Tan brown clayey silt, grey weathered clay/shale at bottom				
	4									
	5									
	6									
	7									
	8									
	9									
	10									
	11									
						T.D. @ 11.0'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Rig #2  
 DRILLING/SAMPLING METHOD: 5" OD Auger

BORING NUMBER: SB-416  
 DATE STARTED: 8/4/94  
 DATE COMPLETED: 8/4/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Blacktop				
Hole moved		0.3								
	1				Fill	Dry, loose, gray fine gravel subbase fill				
	2					@ 2' moist, granular black slag				
	3				"					
	4					@ 4' difficult drilling,				
	5				"	possibly hitting bricks, slag, or rock fragments				
	6									
	7					@ 7' out of obstruction				
	8									
	9									no recovery by auger
	10									
	11									
	12				ML	@ 11.5' stiffening up Damp, brown clayey silt + alluvial rock fragments				
	13					T.D. @ 12.7'				

NOTES:





LOG OF BORING

(SB-417)

PROJECT: MolyCorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: P.G. Lawrence DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: SB-56A DATE STARTED: 8/4/94 DATE COMPLETED: 8/4/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
1	6	12	15		Fill	Black slag/fine & gravel + med. sand, some grey; loose, dry	10:39	8/4	25ND/ 100CPM	3 rad
2	15	15			SP	Becoming fine well-sorted grey sand, loose, slightly moist	10:41	8/4	25/ 100	3 rad
3	27	9	12		SP	8" as above contacting dk. grey/black fine sand + silt saturated @ ~3.8' loose to dense, fr. clay	10:44	8/4	28/ 220	3 rad
4	3	21	18		SM	As above, black fine sand + silty clay (fine layers), saturated to slightly moist, dense	10:48	8/4	26/ 110	2 rad
5	27	31	12		SM	As above, very dense, auger to 7.5'	11:03	8/4	26/ 120	1 rad (top)
6	40	50/ .4	5		"	3" as above, contacting dk. grey soft clay, med. plasticity, slightly moist	11:11	8/4	26/ 100	2 rad
7	5	2	6		CL	Dk. grey/brown clay, w/ fr silt, soft, med. plasticity, slightly moist	11:16	8/4	26/ 100	3 rad
8	2	2	13		CL	As above, little recovery; clay pulled from spoon	11:19	8/4	26/ 120	1 rad
9	2	3	5		CL	Light brown fine sand w/ some silt, very soft to loose, wet	13:05	8/4	26/ 100	2 rad
10	2	2	9		SM	As above, increasing clay content	13:13	8/4	26/ 100	2 rad
11	1	2	8		SM					
12	2	2								
13	1	2								
14	2	2								
15	1	1								

NOTES:

Continued on next page





LOG OF BORING

(SB-418)

PROJECT: Molycorp, Inc. PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: P. Anderson DRILLER: Ergs 1+2 DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: SB-56B DATE STARTED: 8/5/94 DATE COMPLETED: 8/5/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	1	3 5 8	14		Fill	Black slag/fine & gravel + med. sand, some grey; loose, dry	8:50	8/5		3 rad
	2	17 21			SP	Becoming fine well-sorted grey sand, loose, slightly moist	8:52	8/5		3 rad
	3	23	13							
	4	6 4 3	8		SP SM	5" as above contacting dk. grey/black fine sand + silt saturated @ ~3.8' loose to dense, tr. clay	8:55	8/5		2 rad
	5	19 23			SM	As above, black fine sand + silty clay (fine layers), saturated to slightly moist, dense	9:02	8/5		3 rad
	6	25	14							
	7	13 9 6	12		"	As above, very dense, auger to 7.5'	9:14	8/5		3 rad
	8	3			"	3" as above, contacting dk. grey soft clay, med. plasticity, slightly moist	9:16	8/5		1 rad next spoon
	9	2 2 1	-		CL					
	10	2 2 3	18		CL	Dk. grey/brown clay, w/ tr silt, soft, med. plasticity, slightly moist	9:26	8/5		3 rad
	11	2 2 3	-		CL	As above, little recovery; clay pulled from spoon	9:29	8/5		-
	12	2 1 2	5		SM	Light brown fine sand w/ some silt, very soft to loose, wet	9:40	8/5		1 rad clay pulled out of spoon
	13	WH 2 2	12		SM	As above, increasing clay content	9:42	8/5		3 rad

NOTES:

Continued on next page





LOG OF BORING

(SB-419?)

<p>PROJECT: MolyCorp, Inc                  PROJECT NO: 5330 -- 00001                  LOCATION: Washington, PA                  GEOLOGIST: A. Murphy                  DRILLER: B. Lawrence                  DRILLING/SAMPLING METHOD: 3 1/4" ID Auger</p>	<p>BORING NUMBER: SB-56C                  DATE STARTED: 8/8/94                  DATE COMPLETED: 8/8/94                  GROUNDWATER DEPTH:                  ELEVATION:</p>
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SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0	6				Black slag/fine & gravel + med. sand, some grey; loose, dry				
1	9	60	18		Fill		8:22	8/8	1	3 rad
2	49	17			SP	Becoming fine well-sorted grey sand, loose, slightly moist	8:26	8/8		2 rad
3	14		12							
4	2	4			SP	5" as above contacting dk. grey/black fine sand + silt saturated @ ~3.8' loose		8/8		3 rad
	45		18		SM	to dense, tr. clay				
5	22	50			SM	As above, black fine sand + silty clay (fine layers), saturated to slightly moist, dense		8/8		3 rad
	50		10							
6	19	17			"	As above, very dense, auger to 7.5'		8/8		3 rad
	13		18							
7	8	6			"	3" as above, contacting dk. grey soft clay, med. plasticity, slightly moist		8/8		0
	5		0		CL					
8	2	2			CL	Dk. grey/brown clay, w/ tr. silt, soft, med. plasticity, slightly moist		8/8		3 rad
	4		18							
9	4	3			CL	As above, little recovery; clay pulled from spoon		8/8		2 rad
	5		12							
10	3	2			SM	Light brown fine sand w/ some silt, very soft to loose, wet		8/8		3 rad
	3		13							
11	1	1			SM	As above, increasing clay content		8/8		3 rad
	1		16							
12	1		16							

NOTES:

Continued on next page



LOG OF BORING

PROJECT: MolyCorp, Inc PROJECT NO: 5330 -- 00001 LOCATION: Washington, PA GEOLOGIST: A. Murphy DRILLER: B. Lawrence DRILLING/SAMPLING METHOD: 3/4" ID Auger	BORING NUMBER: SB-56C DATE STARTED: 8/8/94 DATE COMPLETED: 8/8/94 GROUNDWATER DEPTH: ELEVATION:
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	16	1 2 5	11		CL	Grey/brown clay w/fine sand, very soft, no plasticity, slightly moist, an alluvial deposit last 3"	-	8/8		2 rad
	17	4			GC	Fine & gravel w/gray clay. Some med. & gravel, very dense & bottom			READINGS TAKEN	
	18	4 8	7.5				-	8/8		
	19	25 30 50	18		-	No recovery	10:20	8/8	NO	3 rad
						T.D. @ 19.5'				

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
PROJECT NO: 5330 -- 00001

LOCATION: Washington, PA  
GEOLOGIST: A. Murphy  
DRILLER: Rig # 3 - Lambert Drilling  
DRILLING/SAMPLING METHOD: 4 1/4" S.S. Auger

BORING NUMBER: SB - 420

DATE STARTED: 8/8/94  
DATE COMPLETED: 8/8/94  
GROUNDWATER DEPTH:  
ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
1		1,2,2,1	2			2" damp brown soil & grass. <u>DRIVE AGAIN:</u>	8:57	8/8		Redrive
2		1,2,2,1	10		Fill	Grass, roots, organic + black organic soil, to black clayey silt for 5", to brown fine-med. sand, wood fragments & 10"	9:07	8/8		2 rad
3		1			"					
4		2	14		CL	2" black fine sandy fill, contacting 12" grey/brown silty clay	9:12	8/8		3 rad
5		2			CL	6" damp greenish-grey clayey silt contacting dry greenish-grey silty clay, mod. plasticity				
6		3	24				9:18	8/8		4 rad
7		2			CL	6" damp clayey silt, some clay, greenish-grey to silty clay, greenish-grey w/rust brown colorations, dry, med. plasticity				
8		3	22				9:24	8/8		4 rad
9		1			CL	Some as above				
10		4	23				7:32	8/8		4 rad
11		1			CL	Wet, greenish-grey silt, some clay grading to grey silty clay				
12		4	24		SP	contacting 5" greenish-grey clay wood pieces, to 6" grey fine sand, some silt, wet to 2" brown fine sand, possibly alluvial deposit	9:41	8/8		4 rad
13		29								
14		50/15	12				10:00	8/8		2 rad
						T. D. @ 13'				

NOTES:







LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Lambert Drilling Co.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-424  
 DATE STARTED: 8/9/94  
 DATE COMPLETED: 8/9/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	5				SM CL	Cuttings are damp, black silty fine sand @ 5' cuttings are light-med. brown silty clay				
	10					@ 10' wet				
	15				CL	@ 15' grey clay, some silt w/rusty brown colorations				
	20					T.D. @ 16.7'				

NOTES:

PAGE 1 OF )

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Lambert Drilling Co.  
 DRILLING/SAMPLING METHOD: ?

BORING NUMBER: SB-425  
 DATE STARTED: 8/9/94 (in Bldg. #37)  
 DATE COMPLETED: 8/9/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					8" concrete floor				
	5				Fill	Cuttings are dry, loose, fine med. grey sand, some gravel & slag (glassy)				
	7.5									
	10				ML	@ 7.5' brown silt, some clay, damp grades to brown clay, some silt, moist				
	15					@ 15.5' out of clay				
	15.5									
					—	@ 18' water				
	20				ML	Cuttings are wet, brown silt, some clay				
						T.D. @ 20.5'				

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc*  
 PROJECT NO: *5330 -- 00001*  
 LOCATION: *Washington, PA*  
 GEOLOGIST: *A. Murphy*  
 DRILLER: *Lambert Drilling Co.*  
 DRILLING/SAMPLING METHOD: *4 1/4" S.S. Auger*

BORING NUMBER: *SB-426*  
 DATE STARTED: *8/17/94*  
 DATE COMPLETED: *8/17/94*  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS	
							Time	Date			
	0					<i>Cuttings are damp, black silt, some fine sand</i>					
	1				<i>ML</i>						
	2										
	3										
	5										
	10					<i>@ 10' wet</i>					
	15					<i>Cuttings change to med. brown clay, some silt</i>					
						<i>@ 15' tougher drilling, possibly alluvial deposit</i>					
						<i>T.D. @ 16.5'</i>					

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Lambert Drilling Co.  
 DRILLING/SAMPLING METHOD: ?

BORING NUMBER: SB-427  
 DATE STARTED: 8/17/94  
 DATE COMPLETED: 8/17/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0					Damp black & brown sand & gravel fill				
	5				Fill					
	10				Wet @ 7' Cuttings are brown wet clay, some silt, mod. plasticity					
	15									
	20				T.D. @ 16.5'					

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *R Dressel*  
 DRILLER: *Frank Kricki*  
 DRILLING/SAMPLING METHOD: *since top 3 1/4" ID hollow stem auger, 3" split spoon*

BORING NUMBER: *TP-1*

DATE STARTED: *6/7/94*  
 DATE COMPLETED: *6/7/94*  
 GROUNDWATER DEPTH: *15.2*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY %	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM ppm NR/HR	COMMENTS
							Time	Date		
	0	4	87%		Fill	<i>blown clay some silt little rock frags</i>			500	
	1.5	13	(1.3)			<i>1/2" dia, bot gravel/shellum slag &lt; 1" dia some silt &amp; sand (sat) (dry)</i>	1115	6/7/94	150-160	
	3.0	18	67%		"	<i>gray gravel/shellum slag some silt &amp; sand (f) &lt; 1.5" dia (dry)</i>	1120	6/7/94	1400-1600	
	4.5	12	100%		"	<i>drab gray silt some sand (sat) &amp; rock frags/slag min &lt; 2" dia (dry)</i>			1700-1900	
	6.0	13	(1.5)		"	<i>drab &amp; gray sand (sat) some slag/gravel &lt; 2" dia little silt trace clay (dry)</i>	1150	6/7/94	180-190	
	7.5	12	100%		"	<i>Top 9" brown &amp; gray sand (sat) some silt &amp; rock frags/slag &lt; 1" bot 6" shellum slag</i>	1200	6/7/94	2100	
	9.0	13	67%		"	<i>Top 5" gray &amp; brown shellum slag (bot 7") sand (sat) some silt trace of clay (sat)</i>	1211	6/7/94	500-1400 150-200	
	10.5	12	100%		"	<i>brown silt some sand (f) little clay and slag (block) &lt; 2" dia (v. damp)</i>	1330	6/7/94	800-900 150-170	
	12.0	11	(1.5)		"	<i>brown silt some sand (f) little clay &amp; slag (block) &lt; 1" dia (v. damp - sat)</i>	1335	6/7/94	900-1000 150	
	13.5	7	67%		"	<i>brown silt some slag/gravel mix &lt; 2" dia little sand (f) trace of clay (sat)</i>	1345	6/7/94	800 150	
	15.0	4	100%		"	<i>Top 8" brown silt some clay trace of slag &amp; sand (f), bot 10" clay some silt (plastic) trace sand (f) (sat)</i>	1350	6/7/94	800-900 140-150	

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Frank Kruti*

BORING NUMBER: *FP-1*

DATE STARTED: *6/7/94*  
 DATE COMPLETED: *6/7/94*  
 GROUNDWATER DEPTH: *15.2*  
 ELEVATION:

DRILLING/SAMPLING METHOD: *Simco 400, 3 1/2" ID hollow stem  
 auger, 3" split spoons*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MNR C/Pn -ppm -UPW	COMMENTS
							Time	Date		
	15.0	4	53%			brown clay some silt trace			600	
	16.5	6	(0.8)		CL	sand (f) (plast) (sat)	1400	6/7/94	160	
	18.0	6	(NR)				1426	6/7/94		
	19.5	3	100			brown silt little sand (f) trace clay			600	
	20.0	3	(1.5)		MI	silt some clay little sand (f)	1430	6/7/94	130	
	21.0	4	73%			70% brown sand (m) some silt (bot) 1/2"			400	
	22.0	9	(1.1)		SP	sand (m) some silt & rock frag < 1/2" diam little clay (alloctm) (sat)	1450	6/7/94	120	
	23.0	4	67%			brown sand (m) some silt & rock			500	
	24.0	26	(1.0)		SP	1/2" diam little clay (alloctm) (sat)	1510	6/7/94	130	
	25.0	16	67%			brown sand (m) some silt & rock			400	
	26.0	46	(1.0)		SP	frag < 1/2" diam little clay (alloctm) (sat)	1525	6/7/94	120	
	27.0					TO @ 23.8 ft.				
	28.0									
	29.0									
	30.0									

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *R Dresser*  
 DRILLER: *Frank Kikel*  
 DRILLING/SAMPLING METHOD: *Sinco 400 3/4" ID hollow stem auger, 3" split spoon*

BORING NUMBER: *TP-2*

DATE STARTED: *6/8/94*  
 DATE COMPLETED: *6/8/94*  
 GROUNDWATER DEPTH: *~13.5'*  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HYDRO. DATA	COMMENTS
							Time	Date		
01	0	4				<i>(top 7%) brown clay some silt little sand (d)</i>			1200	
	1.5	11	87% (1.3)		Fill	<i>and rock frags, Thorium slag small amounts of silt &amp; vitrified slag (dry)</i>	800	6/8/94	180	
02	3.0	50/5	33% (0.5)		11	<i>brown silt small pieces of thorium slag, large piece of thorium slag &lt;2" diam. (dry)</i>	805	6/8/94	220	
		206				<i>brown gray silt some clay little slag</i>			1400	
03	4.5	44	100% (1.5)		11	<i>gray silty &lt;2" some thorium slag (compacted) (dry)</i>	830	6/8/94	210	
		10	22			<i>gray silt some sand (d) &amp;</i>			2200	
04	6.0	37	67% (1.0)		11	<i>thorium slag trace wood &amp; reddog (dry)</i>	845	6/8/94	220	
		13	25			<i>brown &amp; gray thorium clay some</i>			2400	
05	7.5	31	100% (1.5)		11	<i>silt little sand (d), silt some sand (f) trace of clay &amp; rock frag &lt;2" diam (dry)</i>	903	6/8/94	230	
		16	8			<i>TOP 11" brown &amp; gray clay some silt little sand (d)</i>			900-	
06	9.0	17	93% (1.4)		11	<i>gray slag &lt;1" dia some silt trace sand (d), reddog, vitrified slag (dry)</i>	920	6/8/94	210- 230	
		19	9							
08	10.5	7			11			6/8/94		
		20	6	(NR)						
		21	11	20%		11	<i>gray thorium slag piece &lt;3" in +p (v. damp)</i>	945	6/8/94	600
09	12.5	16	67% (1.0)		11	<i>(brown) silt some sand (m-f) little thorium slag (v. damp - sat)</i>	953	6/8/94	900- 180- 200	
		25	WR						800- 1000	
10		26	33%		11	<i>(gray) silt some clay trace: reddog piece of wood (plastic) (sat)</i>			200-	
		29	12						200-	
	30	17	0.5				1005	6/8/94	240	

NOTES:

*Ended Boring at 15 ft.*

LOG OF BORING

PROJECT: *Polycorp, Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *R. Dresser*  
 DRILLER: *Frank Kikk*

BORING NUMBER: *TP-3*

DATE STARTED: *6/8/94*

DATE COMPLETED: *6/8/94*

GROUNDWATER DEPTH:

ELEVATION:

DRILLING/SAMPLING METHOD: *since using 3 1/2" ID hollow stem auger, 3" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TOTAL CPM pass -475µ	COMMENTS
							Time	Date		
	0	2				<i>top 1"</i> brown silt some sand (f) little clay			800-1000	
	3		87%			<i>(bot)</i> red top 2" dia, gray thorium slag				
	1.5	5	(1.3)		Fill	some silt & sand (f) (dry)	1139	6/8/94	140	
02	15					brown silt some sand (f) &			1900	
	15		67%		1)	thorium slag < 1" dia. (dry)	1141	6/8/94	140	
	3.0	16	(1.0)							
03	8					gray thorium slag mixed with			2600	
	9		67%		1)	brown silt some sand (f)	1192	6/8/94	230	
	4.5	9	(1.0)							
04	8					brown & gray silt some thorium			1600	
	9		87%		1)	slag < 2" dia little clay & sand (f)	1200	6/8/94	190	
	6.0	10	(1.3)			(dry)				
05	8					gray thorium slag < 3" dia little			1600	
	12		93%		1)	sand (f) & silt & phos clay some	1215	6/8/94	170	
	7.5	15	(1.4)			silt (dry)				
06	25					<i>top 1/2"</i> brown & gray clay some silt little			2600	
	28		100%		1)	sand (bot) gray & thorium slag little	1228	6/8/94	400	
	9.0	35	(1.5)			sand				
08	8					gray thorium slag little silt &			2000	
	9		67%		1)	sand (f) & clay (damp)	1231	6/8/94	210	
	10.5	6	(1.0)							
08	3									
	4				1)		1300	6/8/94		
	2.0	3	(NR)							
	3					brown thorium slag some sand			900	
	4		87%		1)	(mf) & silt (damp)	1300	6/8/94	140	
	13.5	3	(1.3)							
	3					gray sand (m-f) some silt little			1000	
	5		80%		1)	thorium slag (damp)	1335	6/8/94	170	
	30	5	(1.2)							

NOTES:

LOG OF BORING

PROJECT: *Holycorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Frank Kruti*  
 DRILLING/SAMPLING METHOD: *Simco 400, 3 1/2" ID hollow stem  
 auger, 3" split spoons*

BORING NUMBER: *PP-3*

DATE STARTED: *6/18/94*  
 DATE COMPLETED: *6/18/94*

GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	15.0					gray chlorite clay < 2" dia			220	
	4		53%		Fill	some sand (m-s) + silt				
	5									
	16.5	7	(0.8)				1350	6/18/94	400	
	23		100%		1)	gray chlorite clay < 2" dia. some sand			900-1000	
	19					(m-s) + silt, silt some sand + slag				
	18.0	20	(1.5)			gravel m/c < 1/2" dia. some clay (damp-sat)	1402	6/18/94	150	
	6		100%		1)	brown sand (m-s) some silt and				
	9					little slag/gravel m/c < 1/2" dia				
	19.5	7	(1.5)			(damp)	1411	6/18/94		
	1					Boring ended at 19.5 ft.				
	12									
	21.0									
	14									
	15									
	20.5									
	17									
	18									
	21.0									
	20									
	21									
	25.5									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *R. Dresser*  
 DRILLER: *Frank Kiki*

BORING NUMBER: *TP-4*

DATE STARTED: *6/9/94*  
 DATE COMPLETED: *6/9/94*  
 GROUNDWATER DEPTH:  
 ELEVATION:

DRILLING/SAMPLING METHOD: *Sinco 400 3 1/4" ID hollow stem auger, 3" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		MFG CPM PPT UR/hr	COMMENTS
							Time	Date		
	0	6				1st brown clay some silt & sand (f)				
	12		100%		Fill	bot 10" sand near top < 1/2" dia Tip less			1000	
<i>6.5</i>	24		(1.5)			brown clay (low plast) (dry) (hard)	845	6/9/94	150	
	18		67%		1)	brown clay some silt & slag/rock			1800	
<i>3.0</i>	23		(1.0)			mix of 1/2" dia little sand (f) (low plast)				
	32					(hard) (dry)	857	6/9/94	200	
	12		87%		1)	top 10" brown clay some silt trace rock frag			3000	
	17					< 1/2" dia (low plast) (bot) grey fluorite				
<i>4.5</i>	12		(1.3)			slag (very stiff) (dry)	907	6/9/94	400	
	31		80%		1)	top 3" grey loose fluorite slag (mid) sand			2400	
	33					(co-f) some silt little slag/rock frag < 1/2" dia trace clay (low plast) (dry) (hard)	912	6/9/94	300	
<i>6.0</i>	17		(1.2)			(brown grey) sand (co-f) some silt and			1100	
	8		100%		1)	slag/rock frag < 2" (mid) clay little silt				
<i>7.5</i>	16		(1.5)			(plastic) (bot) sand (mb) some silt & slag/rock	945	6/9/94	190	
	20		80%		1)	brown grey silt some clay & slag/rock			2400	
	17					frag < 2" (low plast) (slag) fluorite				
<i>9.0</i>	13		(1.2)			slag (very stiff) (moist)	953	6/9/94	240	
	9		93%		1)	brown clay some silt (plastic) (mb)			700	
	13					sand (a) some silt little slag/rock				
<i>10.5</i>	35		(1.4)			frag < 1/2" dia + clay (hard) (moist)	1000	6/6/94	140	
	25		93%		1)	grey clay some silt (low plast)			1000	
	13					trace of slag < 1/2" dia (moist)				
<i>12.0</i>	17		(1.4)			(very stiff)	1011	6/9/94	150	
	4		80%		1)	(dlt brown) silt some sand (f) trace			1000	
	7					clay (low plasticity), raddos, wood				
<i>13.5</i>	7		(1.2)			(damp) (medium dense)	1018	6/9/94	200	
	2					Terminated at 13.5 ft.				
	2									
	3									

NOTES:

LOG OF BORING

PROJECT:	BORING NUMBER: <b>TP-5</b>
PROJECT NO:	DATE STARTED: <b>6/9/94</b>
LOCATION:	DATE COMPLETED: <b>6/9/94</b>
GEOLOGIST:	GROUNDWATER DEPTH:
DRILLER:	ELEVATION:
DRILLING/SAMPLING METHOD:	

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		PMTU CAP ppm ug/l	COMMENTS
							Time	Date		
	0									
	1	2	87%		Fill	1" <del>hard</del> silt some clay like sand			100	
	2	7		(f) + rock frag < 1" diam (loose)						
	1.5	15	(1.3)	(low plast) (dry)		1127	6/9/94	190		
	4	8	33%		" "	<del>brown gray</del> clay some silt trace sand (f) +			1600	
	5	57		chlorium slag (dry)						
	3.0	6	(0.5)			1135	6/9/94	300		
	7	14	100%		" "	<del>top 6"</del> clay some silt trace chlorium slag			2000	
	8	13		(low plast) (hard) <sup>mid</sup> silt some sand (f)						
	4.5	9	(1.5)	trace of slag < 1/2" diam (dry)		1143	6/9/94	600		
	5.0	10	NR							
	11	56	100%		" "	<del>top</del> sand (m-d) some silt trace of			3600	
	12	12		slag/rock frag < 1/2" diam, bot gray						
	6.5	13	(1.5)	chlorium slag (loose) (moist)		1200	6/9/94	500		
	14	6	87%		" "	<del>top 8"</del> gray chlorium slag, (mid) brown silt			1000	
	15	6		some sand (f) little clay (med plast)						
	8.0	16	(1.3)	trace slag frag < 1/2" diam, (moist)		1205	6/9/94	200		
	17	4	80%		" "	<del>top 10"</del> silt some clay trace of sand (f) +			1000	
	18	9		(dk) slag/gravel mix < 1/2" diam						
	9.5	19	(1.2)	(low plast) (damp)		1218	6/9/94	200		
	20	5	100%		" "	<del>top 12"</del> silt some clay trace of sand (f)			1000	
	21	4		(dk) slag/gravel mix < 1/2" diam						
	11	22	(1.5)	(low plast) (damp)		1227	6/9/94	200		
	23				Terminated at 17 ft					
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES: \* Not able to penetrate, augered to 30' + soil sample to 6.5'



LOG OF BORING

PROJECT: *Molycorp, Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *R Dresser*  
 DRILLER: *Frank Kikel*

BORING NUMBER: *TP-6*

DATE STARTED: *6/9/94*  
 DATE COMPLETED: *6/9/94*

GROUNDWATER DEPTH:

ELEVATION:

DRILLING/SAMPLING METHOD: *since using 3 1/4" ID hollow stem auger, 3" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO- FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME	DATE	HWT CPM	SPHT	UR/LR	COMMENTS
							Time	Date						
	0	4				<i>1708</i> brown clay some silt trace sand								
	11		80%		Fill	(low plast) (bot) silt some sand (f)					1100			
	15	28	(1.2)			+ thorium slag < 2" dia (dry) (hard)	1403	6/9/94			160			
	17					(red brown) silt little sand (f) + slag/gravel					1600			
	22		20%		11	< 1/2" dia (low plast) (dry) (hard)								
	30	22	(10.3)				1405	6/9/94			190			
	6					<i>1405</i> "top" silt some sand (f) + trace of					1400			
	9		67%		11	clay + slag/gravel < 1/2" dia (low plast)								
	4.5	10	(1.6)			bot 1/2" + thorium slag (mod dense) (dry)	1410	6/9/94			200			
	10	2				(brown) silt some clay little sand (f)					3000			
	14		67%		11	and thorium slag < 2" dia (low plast) (moist) (mod dense)	1418	6/9/94			300			
	14					(brown) silt some clay little sand					1900			
	15		100%		11	(f) and thorium slag < 1" dia (bot)								
	7.5	9	(1.5)			some (moist) (mod dense) silt some clay trace sand (f) (plast)	1429	6/9/94			200			
	16	17				<i>1429</i> "top" (rust brown) clay some silt trace					2000			
	17	18			11	sand (f) (plast) (bot) silt some								
	9.0	22	(1.0)			sand (f) little clay + thorium slag < 1" (mod dense)	1430	6/9/94			300			
	19	5				(brown) silt some clay little					1600			
	20	5			11	sand (f) (mod plast) trace of slag								
	10.5	6	(1.0)			+ r/d slag (moist-dense) (mod dense)	1445	6/9/94			600			
	22	3				(brown) silt some clay (plast)					2400			
	20	3			11	bot to + thorium slag								
	20.2	4	(0.7)				1450	6/9/94			210			
	20	4				(rust brown) silt some sand (f)					2100			
	20	6			11	little + thorium slag trace of clay								
	13.5	7	(1.0)			(low plast) (moist) (mod dense)	1518	6/9/94			300			
	20	9				(gray) thorium slag some silt +					3600			
	20	8			11	sand (f) (low plast) (moist)								
	20	17	(1.5)			(mod dense)	1522	6/9/94			600			

NOTES:

LOG OF BORING

PROJECT: *Holycorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Frank Kruti*

BORING NUMBER: *PP-6*

DATE STARTED: *6/9/94*  
 DATE COMPLETED: *6/9/94*

GROUNDWATER DEPTH:  
 ELEVATION:

DRILLING/SAMPLING METHOD: *Sluico 400 3 1/4" ID hollow stem  
 reuse 1.5, 3" split spoons*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		SPM CPM PPM u/hr	COMMENTS
							Time	Date		
	15.0					<i>brown sand (f) some silt + trace</i>			1000	
	24		67%		Fill	<i>of slag (dark) gravel max 1/2"</i>				
	26		(1.0)			<i>dina (low plast) (moist) (dense)</i>				
	18.5	18					1535	6/9/94	180	
	9		47%		"	<i>brown silt like to sand (f) trace</i>			1800	
	11		(0.7)			<i>of clay + slag (dark) (low plast)</i>				
	18.0	15				<i>(moist) (med dense)</i>	1540	6/9/94	230	
						<i>Boring terminated at 18.0 ft.</i>				
	19.5									
	21.0									
	22.5									
	24.0									
	25.5									
	27.0									
	28.5									
	30.0									

NOTES:

PROJECT: *Molycorp, Inc*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *R. Dresser*  
 DRILLER: *Frank Kikk*

BORING NUMBER: *TP-7*  
 DATE STARTED: *6/10/94*  
 DATE COMPLETED: *6/10/94*  
 GROUNDWATER DEPTH:  
 ELEVATION:

DRILLING/SAMPLING METHOD: *since top 34" SD hollow stem augers, 3" split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		WMS CPT depth W/Hr	COMMENTS
							Time	Date		
	5					Top (cover)				
	18		87%		Fill	(brown) silt some clay & little sand (f)			1400	
1.5	37		(1.3)			trace bedding of "diam (lump)	837	6/10/94	200	
	56				"	some clay little sand (f) thorium slag (brown gray)				
	57		67%			silt some sand (f) little thorium			3000	
3.0	29		(1.0)		"	shy 5" dia trace clay (low plast)				
	5					(dry) (hard)	846	6/10/94	300	
	7		100%		1)	sand (m-f) some silt little				
4.5	7		(1.5)			rock frags / slag (thorium) < 2"			1400	
	10				"	diam (dry) (mod dense)	852	6/10/94	210	
	32		80%			topo. y (brown gray) (mod stiff)				
6.0	26		(1.2)		"	sand (m-f) little silt, thorium slag, bot 3/4			1600	
	9					clay some silt little sand (f)	900	6/10/94	210	
	16		100%		"	(mod stiff) (dry) (hard)				
7.5	17		(1.5)			sand (m-f) some silt little, thorium			2700	
	24				"	shy 1" dia, clay some silt little				
	20		67%			thorium slag 2" dia (plastic) (dry) (hard)	904	6/10/94	300	
9.0	16		(1.0)		"	silt some sand (f) little thorium			2000	
	7		100%			slag < 2.5" dia trace of clay (lump)	912	6/10/94	300	
	27				1)	(dry) (dense)				
10.5	7		(1.5)			gray sand (a) some silt & slag (thorium) pieces < 2" dia	918	6/10/94	600	
	23				"	(dry) (mod dense)				
	3		67%			(brown - 1/2 brown - 2/3 gray)			2600	
12.0	4		(1.0)		"	silt some clay little thorium				
	25					shy and sand (m-f) (plastic) (moist)	926	6/10/94	210	
	25				"	(mod stiff)				
	5		100%			sand (m-f) some silt and thorium			3100	
13.5	18		(1.5)		"	slag < 2" dia, clay some silt trace of thorium & 2" dia (plastic) (moist) (stiff)	937	6/10/94	300	
	29					(dry & brown) top 5"				
	36		87%		"	Thorium slag trace of sand (f) & silt			3100	
30	38		(1.3)			silt & little sandy silt some clay little sand (f) (low plast) (moist)	941	6/10/94	300	

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc.*  
 PROJECT NO: *5330.001*  
 LOCATION: *Washington, PA.*  
 GEOLOGIST: *B. Dressel*  
 DRILLER: *Frank Kruti*

BORING NUMBER: *PP-7*

DATE STARTED: *6/10/94*

DATE COMPLETED: *6/10/94*

GROUNDWATER DEPTH:

ELEVATION:

DRILLING/SAMPLING METHOD: *Sinco 400 3 1/2" ID hollow stem  
 augers, 3" split spoons*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		UNIT CPM DEPTH (ft)	COMMENTS
							Time	Date		
	15.0	13				<i>brown sand (m-f) some silt + trace of clay</i>			600	
	9		100%		Fill	<i>2 brown clay some silt</i>				
	10					<i>(plastic) (moist) (med. dense)</i>	957	6/10/94	600	
	16.5		(1.5)							
	9		67%		"	<i>brown sand (mf) some silt trace</i>			150	
	16					<i>of clay (moist) (med dense)</i>	1005	6/10/94	500	
	18.0	16	(1.0)							
	9					<i>End Boring at 18 ft</i>				
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: Molycorp Inc

BORING NUMBER: SB-428

PROJECT NO:

DATE STARTED: 10-28-94

LOCATION:

DATE COMPLETED: 10-28-94

GEOLOGIST: P. Anderson

GROUNDWATER DEPTH:

DRILLER: D. Novotny, TTI

ELEVATION:

DRILLING/SAMPLING METHOD: Solid stem auger / observe cuttings

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMU ppm	COMMENTS	
							Time	Date			
	0										
	1				Fill	blue/grey and black med. sand and slag; med. to fine subround gravel, med. dense, sl. moist					
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
	10										
	11				CL	lt. brown clay, soft, low plasticity, grading to stiff to hard, dry					
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26					T.O. @ 24.2 ft.					
	27										
	28										
	29										
	30										

NOTES:

Project: MolyCorp Inc.  
 Date Started: 10-24-94 Date Completed: 10-24-94  
 Elevation:  
 Drillers: D. Novotny, TTI

Location: Washington Pa.  
 Project Number: 5330.001  
 Field Geologist: P. Anderson  
 Sampling Method: split spoon  
 Drilling Method: hollow stem auger

Sample ID	Depth (feet)	Blows per 6"	Recover (in.)	Pro-File	USCS Class	Material Description	Collection Time Date	Comments
000-003	1.5	5 10 7	15"		FILL	grass, roots, 2" topsoil; 4 med gravel subbase, then brown silt and fine sand; black slag sand, molybdenite chunks, loose, dry.	1051 10-24-94	
004-005	3.0	5 5 5	9"		FILL	slag, molybdenite and brick chunks; fine to medium, loose, dry	1055 "	
007-009	4.5	4 4 4	18"		FILL	dk. brown fine sand and silt, moist grading to slag (med. to fine), some slag sand.	1108 "	
102-110	6.0	4 4 4	18"		FILL CL	slag as above grading to grey/orange/brown (mottled) clay, stiff, dry.	1114 "	
113-115	7.5	4 4 4	8"		CL	orange brown clay and silt w/some fine sand, soft, sl. moist.	1120 "	
116-117	9.0	4 4 4	28"		CL	grey stiff clay, little recovery	1122 "	
121-122	10.5	6 6 6	18"		CL	mottled soft clay, moist grading to stiff grey clay, dry	1130 "	
223-224	12.0	9 10 10	9"		CL	mottled clay and silt, w/some fine sand; stiff to very stiff, sl. moist to dry.	1138 "	
226-227	13.5	6 6 4	18"		CL	clay as above w/ microlayers of fine sand	1150 "	
228-230	15.0	9 16 12	10"		CL	orange/tan clay and silt w/some fine sand; stiff, dry	1153 "	
331-333	16.5	5 6 9	18"		CL	tan/brown/white (mottled) clay w/some silt; low plasticity, med. stiff, dry	1203 "	
334-336	18.0	6 46 15	11"		CL SP	as above; contacting 6" H. br. white med. fine sand, well sorted dense; sand is orange/brown, lost 1"	1210 "	
337-338	19.5	14 15 27	18"		SP CL	5" orange brown clay and fine sand very soft, wet grading to very stiff clay w/some silt, low plast., dry contacting 3" dark grey clay shale, hard, friable, dry.	1226 "	
440-441	21.0	25 73/2	5"		CL BR	dark grey clay/shale as above,	1232 "	

Notes: .....

LOG OF BORING

PROJECT: MolyCorp Inc  
PROJECT NO:

BORING NUMBER: 58-430

LOCATION:

DATE STARTED: 10-27-94

GEOLOGIST: P. Anderson

DATE COMPLETED: 10-27-94

DRILLER: D. Navotny, TTI

GROUNDWATER DEPTH:

DRILLING/SAMPLING METHOD: solid stem auger, observe cuttings

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS		
							Time	Date				
	0											
	1				Fill	dark brown/black silt and fine sand, some slag, dense, sl. moist.						
	2											
	3											
	4											
	5											
	6				CL	brown clay w/ trace silt and fine sand, med. plasticity soft, sl. moist.						
	7											
	8											
	9				CL	lt. tan/brown clay w/ increasing fine sand st. ff to hard, friable, dry.						
	10											
	11											
	12											
	13											
	14						SC					
	15											
	16											
	17											
	18											
	19											
	20				CL	20-21 ft clay, soft, moist						
	21											
	22											
	23					T.O. @ 21.6 ft.						
	24											
	25											
	26											
	27											
	28											
	29											
	30											

NOTES:

Project: MolyCorp Inc.

Date Started: 10-25-94 Date Completed: 10-25-94

Elevation:

GV Depth: NA

Drillers: D. Novotny, T.T.I.

Sample ID	Depth (feet)	Blows per 6"	Recover (in.)	Pro- file	USCS Class	Material Description	Collection Time Date	Comments
01	0	7	13		FILL	5" top soil then grey med. sand, well sorted w/ trace med. angular gravel, dry, loose; molybdenite slag chunk in spoon tip.	0835	
02		12					10-25-94	
03		14						
05	1.5	4	11		FILL	6" grey sand as above, contacting 5" slag / slag sand; loose, dry	0838	"
06		5						
08		4						
07	3.0	5	9		FILL	slag w/ dk. grey/black silt and fine sand, tr. clear glass; dense, moist to wet	0845	"
08		12						
09		63						
10	4.5	15	9		FILL	slag w/ red brick, moist; grading to tan clay and silt w/ tr. fine slag	0852	"
11		47						
12		0						
13	6.0	4	13		CL	tan mottled clay w/ some silt, low plasticity, med. stiff, dry.	0902	"
14		5						
15		7						
16	7.5	15	16		CL	as above, hard.	0904	"
17		32						
18		26						
19	9.0	9	18		CL	as above w/ fine sand microlayers	0915	"
20		11						
21		17						
22	10.5	21	18		CL	clay (gradational color change to tan) w/ tr. silt & fine sand; hard, friable, dry	0918	"
23		32						
24		50/1.4'						
25	12.0	38	13		CL	as above w/ weathered clay shale, grey, dry	0935	"
26		50/1.3'						
	13.5					Boring Terminated at 13 ft.		

Notes:

B.L. B. 13.5'



LOG OF BORING

PROJECT: MolyCorp Inc. BORING NUMBER: SB-432  
 PROJECT NO: DATE STARTED: 10-26-94  
 LOCATION: DATE COMPLETED: 10-26-94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: D. Navotny, T.I.I. ELEVATION:  
 DRILLING/SAMPLING METHOD: solid stem auger, observe cuttings

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	1				Fill	black slag / slag sand med. dense to dense, sl. moist				
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9				ML CL	tan/brown clay and silt, soft, low plasticity, grading to stiff to hard, friable, dry.				
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19				T.D. @ 18.8 ft.					
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: MolyCorp Inc	BORING NUMBER: SB-433
PROJECT NO:	DATE STARTED: 10-26-94
LOCATION:	DATE COMPLETED: 10-26-94
GEOLOGIST: P. Anderson	GROUNDWATER DEPTH:
DRILLER: D. Nowotny, TTI	ELEVATION:
DRILLING/SAMPLING METHOD: solid stem auger, observe cuttings	

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMU ppm	COMMENTS
							Time	Date		
	0									
	1				Fill	slag/slag sand; dark brown silt and sand, med. dense, sl. moist				
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10				CL 1t. brown/tan clay w/ trn silt, soft; grading to clay and fine s med. friable, dry then all clay, hard, dry.					
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21				T.D. @ 20.2 ft.					
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: MolyCorp Inc  
 PROJECT NO:  
 LOCATION:  
 GEOLOGIST: P. Anderson  
 DRILLER: D. Novotny, TTI  
 DRILLING/SAMPLING METHOD: solid stem auger, observe cuttings

BORING NUMBER: SB-4134  
 DATE STARTED: 10-25-94  
 DATE COMPLETED: 10-25-94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS	
							Time	Date			
	0										
	1				Fill	0-5 ft: black slag / slag sand and metal slag, loose to very dense, dry					
	2										
	3										
	4										
	5										
	6				SM / SC	5-9 ft: grey fine sand, silt and some clay, soft, wet.					
	7										
	8										
	9										
	10				CL	9-11.5 ft. tan clay and silt w/ some fine sand, stiff to hard, dry				increasing sand to bottom	
	11										
	12										
	13					TD @ 11.5 ft.					
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

LOG OF BORING

PROJECT: Molycorp Inc  
 PROJECT NO:  
 LOCATION:  
 GEOLOGIST: P. Anderson  
 DRILLER: D. Navotny, TTI  
 DRILLING/SAMPLING METHOD: solid stem auger, observe cuttings

BORING NUMBER: 3B-435  
 DATE STARTED: 10-25-94  
 DATE COMPLETED: 10-25-94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS	
							Time	Date			
	0										
	1				F.11	black slag sand / slag, loose, sl. moist					
	2										
	3										
	4										
	5										
	6				CL	dk grey clay w/ some silt, med plasticity, soft, sl. moist.					
	7										
	8				T.O. @ 7.0 ft.						
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc.* BORING NUMBER: *SB-436*  
 PROJECT NO: DATE STARTED: *10-26-94*  
 LOCATION: DATE COMPLETED: *10-26-94*  
 GEOLOGIST: *R. Anderson* GROUNDWATER DEPTH:  
 DRILLER: *D. Novotny, TTI* ELEVATION:  
 DRILLING/SAMPLING METHOD: *solid stem auger, observe cuttings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS
							Time	Date		
0										
1					F(1)	slag, black slag sand; loose, sl. moist				
2										
3										
4										
5										
6					CL	black to tan clay, soft, low plasticity, moist				
7										
8					CL	st. ff to hard brown/ tan clay and silt w/ some fine sand, friable, dry				
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20						T.D. @ 18.8 ft.				
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

NOTES:

Project: Molycorp Inc.  
 Date Started: 10-26-94 Date Completed: 10-26-94  
 Elevation: GV Depth: none encountered  
 Drillers: D. Naudry, T.T.I.

Project Number: 6330.001  
 Field Geologist: P. Anderson  
 Sampling Method: split spoon  
 Drilling Method: hollow stem auger

Sample ID	Depth (feet)	Blows per 6"	Recover (in.)	Pro-File	USCS Class	Material Description	Collection Time Date	Comments
003	1.5	30 45 47	18		FILL	slag, black slag sand, moly sulf ida slag/sand; rock, dense, dry	0843 10-26-94	
008	3.0	19 14 11	16		FILL CL	6" blk slag/slag sand, loose, contacting 4" blk fine sand and silt, some slag con- acting 6" brown stiff clay w/ tr. fine sand and silt, whole interval sh. moist	0847 "	
005	4.5	27 33 41	18		CL ML	H. brown clay and fine sand, low plastic, soft to stiff, grading to H. brown fine sand and silt, tr. clay, dense, friable dry.	0856 "	
017	6.0	9 11 16	8		ML CL	as above, grading to mottled clay	0900 "	
015	7.5	12 18 21	4		CL	brown/mottled clay w/ some fine sand and silt; hard, friable, dry	0911 "	
019	9.0	14 16 19	9		CL	mottled clay, low plasticity; very stiff to hard, dry	0915 "	
021	10.5	12 19 32	18		CL	tan/H. brown clay w/ increasing silt and fine sand, hard, friable	0927 "	
22 23	12.0	48 50/3	9		CL	tan silt and clay then grey clay shale; friable, dry	0931 "	
						Boring Terminated at 11.5 ft.		

Notes: .....

Project: MolyCorp Inc.  
 Date Started: 10-25-94 Date Completed: 10-25-94  
 Elevation: GV Depth: 211 ft.  
 Drillers: D. Novotny, T.T.I.

Location: Washington Pa  
 Project Number: 5330.021  
 Field Geologist: P. Anderson  
 Sampling Method: split spoon  
 Drilling Method: hollow stem auger

Sample ID	Depth (feet)	Blows per 6"	Recover (in.)	Pro-File	USCS Class	Material Description	Collection Time Date	Comments
01 02 03	0 1.5	18 24 23	18		FILL	slag, brick, blk. silt and fine sand, concrete chunks at spoon tip, dense, dry.	1036 10-25-94	
04 05 06	3.0	20 18 11	15		FILL CL	as above, grading to dark brown silt then brown/orange clay w/silt and fine sand, stiff, dry.	1040 "	
08 09	4.5	9 11 12	8		CL	mottled clay w/some silt, friable stiff, low plasticity, dry.	1047 "	
10 11 12	6.0	7 11 15	16		CL	as above, becoming hard w/ very fine sand layers.	1049 "	
13 14 15	7.5	7 8 10	17		CL	as above, stiff.	1100 "	
16 17 18	9.0	12 12 14	15		CL	similar to above, trace fine tan sand at 8 ft.	1102 "	
19 20 21	10.5	35 26 9	18		CL	thick brown clay w/increasing fine sand (4" layer of sand w/clay from 28-10.5 ft.) friable, dry; becoming moist at spoon tip.	1114 "	
2 3	12.0	18 50/2'	8		SP BR	fractured fine sand and clay (4") contacting tan/grey clay shale, hard, friable, dry.	1117 "	
						Boring Terminated at 11.5 ft.		

Notes: BR - bed rock

LOG OF BORING

PROJECT: MolyCorp Inc. BORING NUMBER: SB-439  
 PROJECT NO: DATE STARTED: 10-28-94  
 LOCATION: DATE COMPLETED: 10-28-94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: D. Novotny, TTI ELEVATION:  
 DRILLING/SAMPLING METHOD: solid stem auger, observe cuttings

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS	
							Time	Date			
	0										
	1				Fill	coarse slag chunks/black slag sand, dense, sl. moist.					
	2										
	3										
	4										
	5										
	6				ML	light brown clay and silt w/ some fine sand low plasticity, soft					
	7										
	8				CL	stiff @ 9 ft., clay w/ trace silt and fine sand grading to hard, dry					
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19					T.O. @ 18.1 ft.					
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:



LOG OF BORING

PROJECT: *Molycorp Inc* BORING NUMBER: *SB-440*  
 PROJECT NO: DATE STARTED: *10-27-94*  
 LOCATION: DATE COMPLETED: *10-27-94*  
 GEOLOGIST: *P. Anderson* GROUNDWATER DEPTH:  
 DRILLER: *D. Novotny TJI.* ELEVATION:  
 DRILLING/SAMPLING METHOD: *solid stem auger, observe cuttings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS
							Time	Date		
	0									
	1				Fill	<i>brown fine sand and med. sub angular gravel, slag/black slag sands; dense, dry metallic grey/blue slag @ 3ft.</i>				
	2									
	3									
	4									
	5					<i>T.O. @ 4.3 ft.</i>				
	6									
	7									
	8									
	9									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: <i>Molycorp Inc</i>	BORING NUMBER: <i>SB-447</i>
PROJECT NO:	DATE STARTED: <i>10-27-94</i>
LOCATION:	DATE COMPLETED: <i>10-27-94</i>
GEOLOGIST: <i>R Anderson</i>	GROUNDWATER DEPTH:
DRILLER: <i>D Novotny TTI</i>	ELEVATION:
DRILLING/SAMPLING METHOD: <i>solid stem auger, observe cuttings</i>	

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS	
							Time	Date			
	0										
	1				F.71	Slog, angular med. gravel, black sand, dense, dry					
	2										
	3	<i>2.5</i>									
	4				ML CL	lt. brown silt w/ some clay, rock fragments, stiff, silty; to hard (brown clay shale)					
	5										
	6										
	7					T.D. @ 5.2 ft.					
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

LOG OF BORING

PROJECT: *Molycorp Inc*

BORING NUMBER: *SB-442*

PROJECT NO:

DATE STARTED: *10-27-94*

LOCATION:

DATE COMPLETED: *10-27-94*

GEOLOGIST: *P. Anderson*

GROUNDWATER DEPTH:

DRILLER: *D. Novotny, TTI*

ELEVATION:

DRILLING/SAMPLING METHOD: *Solid stem auger, observe cuttings*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS	
							Time	Date			
	0										
	1				Fill	slag, railroad bed gravel, dense, dry					
	2										
	3										
	4										
	5				ML	lt. brown clay and silt w/ some fine sand, stiff to hard, dry					
	6										
	7				CL						
	8										
	9										
	10										
	11					T.D. @ 10.0 ft.					
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

LOG OF BORING

PROJECT: Molycorp Inc.	BORING NUMBER: SB443
PROJECT NO:	DATE STARTED: 10-27-94
LOCATION:	DATE COMPLETED: 10-27-94
GEOLOGIST: R Anderson	GROUNDWATER DEPTH:
DRILLER: D. Novotny, TTI	ELEVATION:
DRILLING/SAMPLING METHOD: solid stem augers, observe cuttings	

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS	
							Time	Date			
	0										
	1										
	2				SM	dk. brown silt and fine sand, trace very fine round gravel, loamy, sl. moist.					
	3				CL            SC	light brown clay, some gravel at 5 ft, otherwise increasing fine sand and silt; med. plasticity, soft, becoming dry and hard below 5 ft.					
	4										
	5										
	6										
	7										
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18					T.D. @ 17.1 ft.					
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

LOG OF BORING

PROJECT: MolyCorp Inc.

BORING NUMBER: SB-444

PROJECT NO:

DATE STARTED: 10-27-94

LOCATION:

DATE COMPLETED: 10-27-94

GEOLOGIST: P. Anderson

GROUNDWATER DEPTH:

DRILLER: D. Novotny, TFI

ELEVATION:

DRILLING/SAMPLING METHOD: solid stem augers, observe cuttings

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNu ppm	COMMENTS	
							Time	Date			
	0										
	1				Fill	blue/grey, moly sulfide? slag, dense, sl. moist					
	2										
	3										
	4										
	5				CL	H-brown clay, med. plastic soft, moist becoming st. ff, then hard, dry					
	6										
	7										
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21					21-22 ft. clay becomes soft, moist before refusal.					
	22										
	23										
	24					T.D. @ 22.9 ft.					
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

LOG OF BORING

PROJECT: Mdycorp Inc.

BORING NUMBER: SB-445

PROJECT NO:

DATE STARTED: 10-27-94

LOCATION:

DATE COMPLETED: 10-27-94

GEOLOGIST: P. Anderson

GROUNDWATER DEPTH:

DRILLER: D. Navotny, TFI

ELEVATION:

DRILLING/SAMPLING METHOD: solid stem augers, observe cuttings

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS	
							Time	Date			
	0										
	1				Fill	railroad bed slag, dense, dry.					
	2										
	3				CL	brown tan clay, soft to stiff low plasticity, dry to hard					
	4										
	5										
	6										
	7										
	8										
	9										
	10					T.O. @ 9.2 ft.					
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

LOG OF BORING

PROJECT: MolyCorp Inc

BORING NUMBER: SB-446

PROJECT NO:

DATE STARTED: 10-27-94

LOCATION:

DATE COMPLETED: 10-27-94

GEOLOGIST: P. Anderson

GROUNDWATER DEPTH:

DRILLER: D. Novotny, TTI

ELEVATION:

DRILLING/SAMPLING METHOD: solid stem augers, observe cuttings

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU ppm	COMMENTS	
							Time	Date			
	0										
	1										
	2				Fill	brown med. sand and rock fragments, slag, dense					
	3				SM CL	lt. brown med. to fine sand, some silt; grading to soft to stiff lt. brown/tan clay, hard, friable @ 7 ft.  w/rock fragments @ 9 ft.					
	4										
	5										
	6										
	7										
	8										
	9										
	10					T.D. @ 9.1 ft.					
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										

NOTES:

**OFF-SITE SOIL BORINGS (OS)**



LOG OF BORING

PROJECT: Molycorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-402  
 DATE STARTED: 8/1/94  
 DATE COMPLETED: 8/1/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	1				ML	Brown silt & clay, moist, med. plasticity				
	2									
	3									
	4									
	5									
	5.5					▽ @ 6.0'				
	6				CL	Grey clay & fine sand w/some silt, some rock fragments w/depth, low plasticity, moist to wet				
	7									
	8									
	9									
	9.5									
	10				CL BR	Weathered grey clay & rock				
	11									
	11.6									
	12					T.D. @ 11.6'				

NOTES: BR - Bedrock

LOG OF BORING

PROJECT: Molycorp, Inc.  
PROJECT NO: 5330 -- 00001

LOCATION: Washington, PA  
GEOLOGIST: P. Anderson

DRILLER: Rig 2

DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-403

DATE STARTED: 8/1/94

DATE COMPLETED: 8/1/94

GROUNDWATER DEPTH:

ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY (%)	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
0		1								
1		3			ML	Dk. brown silt w/some clay & fine sand, soft, friable, slightly moist, low plasticity, (3 rad. compaction)	8:30	8/1	15	3 rad
2		3			ML	As above, increased clay content w/depth, med. plasticity	8:31	8/1	Blod.	3 rad
3		3	13		CL					
4		1			CL	As above, tr. sand, plant roots wet at bottom	8:32	8/1	NAB	3 rad
5		1			CL	As above, little recovery				(66-72")
6		1	2				8:36	8/1		1 rad
7		2			CL	Brown clay as above, stiff contacting 3" dk. grey sand				
		2			SP	(fine-med.) & fine gravel, saturated, med. dense	8:43	8/1		2 rad
8		5			SP	Sand & gravel w/some clay, as above contacting 5" alluvial deposit				
9		10	18		AL		8:45	8/1		3 rad
		13			AL	Alluvial deposit contacting 3" grey hard clay, dry, tr. weathered bedrock				
10		7			AL		8:55	8/1		2 rad
		13	7		CL					
11		26			CL	Hard grey clay as above				
		29					8:58	8/1		1 rad
12		43	4							
		50				No recovery				
13		.1					9:10	8/1		
14						T. D. @ 12.0'				

NOTES: AL - Alluvial deposit



LOG OF BORING

<p>PROJECT: Molycorp, Inc.          PROJECT NO: 5330 -- 00001          LOCATION: Washington, PA          GEOLOGIST: P. Anderson          DRILLER: B. Lawrence          DRILLING/SAMPLING METHOD: 3/4" ID Auger</p>	<p>BORING NUMBER: SB-405          DATE STARTED: 8/1/94          DATE COMPLETED: 8/1/94          GROUNDWATER DEPTH:          ELEVATION:</p>
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SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uRh	COMMENTS	
							Time	Date			
	0										
	1				CM	Brown silt & clay, med. plasticity, soft, moist					
	2										
	3										
	4										
	4.5										
	5				CL	Dk. grey clay & fine sand, moist to wet, low plasticity					
	6										
	7										
	8										
	9										
	9.7										
	10					T.D. @ 9.7' (on bedrock)					

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Rig #2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB - 407  
 DATE STARTED: 8/3/94  
 DATE COMPLETED: 8/3/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 1/8"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0									
	1	3			Fill	1" Organics - grass roots				
		3		2" Fill brown silt, dry, loose, rock fragments						
		4	3			8:33	8/3			
	2	4			"	Fill, rock, brick fragments, dry, loose, brownish black sand size				
		13								
	3	11	16			8:35	8/3			
	4	9			"	Fill, same as above, contacting brown silty sand w/subrounded pebbles				
		4								
		3	15.5			8:37	8/3			
	5	2			"	Black sand size fill w/rock, brick fragments, loose, moist				
		4								
	6	3	4.5			8:40	8/3			
	7	5			"	2" grey weathered rock fragments contacting damp black sand size fill				
		44								
		3	14			8:47	8/3			
	8	3			"	3" as above, contacting med. brown clayey silt, moist, soft				
		3								
	9	3	18			8:49	8/3			
	10	2			ML CL	Light tan brown clayey silt grading to tan brown clay w/rusty oxidation				
		3								
		3	18			8:56	8/3			
	11	4			CL	Light tan grey silty clay w/rusty brown oxidation				
		5								
	12	5	18			9:01	8/3			
	13	4			CL SM	3" same as above grading to clayey silt contacting rusty brown silty sand; dry, moist				
		5								
		6	18			9:12	8/3			
	14	13			SM CL	Same as above, grading to hard, stiff, dry light brown silty clay at 5", subrounded pebble at 5"				
		13								
	15	19	18			9:14	8/3			

NOTES:  
 Continued on next page



LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: SB-408  
 PROJECT NO: 5330 -- 00001 DATE STARTED: 8/3/94  
 LOCATION: Washington, PA DATE COMPLETED: 8/3/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH:  
 DRILLER: Rigs 1 & 2. ELEVATION:  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

SAMPLE ID	DEPTH (feet)	BLOWS per 5'	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uF/n	COMMENTS
							Time	Date		
	0	3								
	1	4			Fill	Brown silt & clay, tr. fine sand, fine tr. brick, grass; med. stiff, dry	8:28	8/3	15	2 rad
	2	16			"	Brick fragments, tan fine sand, rock fragments, dense, dry	8:30	8/3	15	2 rad
	3	11	7		"					
	4	5			"	Brown clay w/ fine grey sand, brick, fine & gravel; stiff to med. dense, slightly moist	8:34	8/3	15	3 rad
	5	6	18		"					
	6	10			"	As above, becoming dk. grey last 2"	8:39	8/3	14	3 rad
	7	9	18		"					
	8	5			"	Slag, brown clay, grey fine sand, clear glass, stiff to dense, slightly moist	8:49	8/3	14	3 rad
	9	7	13		"					
	10	14			"	Grey sand, olive sand (fine) gravel, tr. glass, dry, dense	8:51	8/3	14	2 rad
	11	16	8		"					
	12	18			"	Kiln brick (?) tan sand, dense, slightly moist	9:06	8/3	14	1 rad
	13	6	3							
	14	6				No recovery				
	15	7								
	16	10					9:08	8/3	14	no recovery
	17	5								
	18	6			CL	Gray clay w/some fill from above, stiff med. plasticity grading into soft brown clay & silt, slightly moist, low plasticity	9:21	8/3	15	3 rad
	19	12	16							
	20	5			CL	Brown clay w/ fine sand & tr. subround fine gravel, low plasticity, stiff slightly moist	9:23	8/3	15	3 rad
	21	6	13							

NOTES:

(Continued on next page)





LOG OF BORING

PROJECT: MolyCorp, Inc.  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: Rigs 1 + 2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger

BORING NUMBER: SB-409  
 DATE STARTED: 8/3/94  
 DATE COMPLETED: 8/3/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 12"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0	3				Brown clay & silt, soft, dry, low plasticity, tr. brick	10:47	8/3	1	3 rad
1	4		14	Fill						
	5									
	2	10			"	Brick fragments, brown silt & clay, fine brown sand; fill, dense, dry	10:48	8/3	1	2 rad
2	11		12	"						
3	11									
	4	6			"	As above, 4" recovery, clear glass	10:55	8/3	TAKEN	1 rad
4	5		4	"						
	6									
	5	3			"	As above; brick, sand, brown clay, med. dense, dry	10:57	8/3	TAKEN	3 rad
5	3		18	"						
6	3									
	7	2			"	As above, increasing clay content, decreasing fill w/depth (last 6" entirely brown clay, soft), slightly moist	11:06	8/3	S	2 rad
7	1		12	CL						
	2									
	8	2			CL	Grey clay w/tr. fill, soft, med. plasticity; slightly moist	11:07	8/3	READINGS	3 rad
8	3		16	CL						
9	3									
	10	7			CL	Grey clay as above, grading into light brown/tan fine sand & silt w/tr. clay, dry, friable, dense	11:11	8/3	READINGS	2 rad
10	9		13	SM						
	15									
	11	13			SM	As above, no recovery from bedrock	11:12	8/3	NO	1 rad
11	50		6	SM						
12	50									
						T.D. @ 11.5'				Spcon bouncing on bedrock

NOTES:

LOG OF BORING

PROJECT: Molycorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: A. Murphy  
 DRILLER: Rig # 2  
 DRILLING/SAMPLING METHOD: 3/4" ID Auger (hollow stem)

BORING NUMBER: SB-410  
 DATE STARTED: 8/3/94  
 DATE COMPLETED: 8/3/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 118"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
	0	4								
	1	11			SM (fill)	Fill 2" organic grass + roots contacting rusty brown colored silty sand w/rock & brick fragments, dry, loose	10:58	8/3		
	2	9			"	Same as above, fill				
	3	7	11		"		11:00	8/3		
	4	6			"	Med. brown silty sand w/rock & brick fragments, fill, dry, loose				
	4	4	8		"		11:03	8/3		
	5	4			"	Same as above but slightly damp				
	6	6	6		"		11:06	8/3		
	7	8			"	Med. brown, moist silty sand some rock & brick fragments, loose, fill for 2" contacting rusty brown clayey silt - fill				
	7	10	16		"		11:14	8/3		
	8	7			SM	Dk. brown silty sand w/rock/brick fragments				
	8	10								
	9	11	2.5				11:17	8/3		
	10	9			SM	Same as above, for 4" contacting rusty brown + grey fine-med. sand dry				
	10	7	18				11:25	8/3		
	11	13								
	11	35			SM	Same as above				
	12	50/3	9				11:29	8/3		
						T. D. @ 11.3'				

NOTES:



LOG OF BORING

PROJECT: MOLYCORP, Inc

BORING NUMBER: SB-052

PROJECT NO: 5330.001

DATE STARTED: 7/5/94

LOCATION: WASHINGTON, PA

DATE COMPLETED: 7/5/94

GEOLOGIST: A. LAFFERTY

GROUNDWATER DEPTH:

DRILLER: TERRA TESTING, INC.

ELEVATION:

DRILLING/SAMPLING METHOD:

4" O.D. SOLID STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HND ZAD PPT W/THZ	COMMENTS
							Time	Date		
01	0.5	5								
02	1	10	18"		ML	ORANGE TAN SANDY SILT, FRIABLE, LOW PLASTICITY, SOME WEATHERED SANDSTONE FRAGMENTS, DRY, STIFF	0758	7/5/94	2	
03	1.5	16								
04	2	14								
05	2.5	6	14"		ML	SANDY SILT AS ABOVE, GRADES INTO A CLAY WITH SILT, STIFF, DRY, LOW PLASTICITY	0900	7/5/94	2	
06	3	9								
07	3.5	5								
08	4	8								
09	4.5	9	16"		ML	ORANGE TAN AND GREY MOTTLED SILT WITH CLAY, LOW PLASTICITY, FRIABLE, MED. STIFF DRY	0807	7/5/94	15	
10	5	9								
11	5.5	30								
12	6	50/3	10"		ML	AS ABOVE, Very stiff	0811	7/5/94	15	
	6.5									
	7									
	7.5									
	8									
	8.5									
	9									
	9.5									
	10									
	10.5									
	11									
	11.5									
	12									
	12.5									
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	24									
	24.5									
	25									
	25.5									
	26									
	26.5									
	27									
	27.5									
	28									
	28.5									
	29									
	29.5									
	30									

NOTES:

BOTTOM OF BORING @ 5.7'



LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-034  
 DATE STARTED: 7/5/94  
 DATE COMPLETED: 7/5/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNU RAD DATE/TIME	COMMENTS
							Time	Date		
01	0.5	3								
02	1.0	8	13"		ML	ORANGE BROWN AND LT. GREY MOTTLED SILT WITH CLAY, ROOT FRAGMENT, FRAGILE, LOW PLAST. DRY, MED. STIFF	0832		1.5	AT SURFACE
03	1.5	10							1.5	
04	2.0	11			ML	SILT AS ABOVE, GRADES INTO AN ORANGE SILT W/CLAY				
05	2.5	11	11"						1.5	
06	3.0	14			CL	RED STIFF, FRAGILE, DRY TO SLIGHTLY MOIST.	0834			
07	3.5	50/1.5	9"		CL	ORANGE AND GREY MOTTLED SILT W/CLAY, FRAGILE, HARD, DRY GRADES INTO AN ORANGE BROWN WEATHERED SHALE, FRAGILE, FR. ABLE	0841		1.5	
	4.5									
	5.0									
	6.0									
	7.5									
	9.0									
	10.5									
	12.0									
	13.5									
	15.0									

BOTTOM OF BORING @ 35'

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc  
 PROJECT NO: 5330 -- 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Auger / 2" OD split spoon

BORING NUMBER: OS-5  
 DATE STARTED: 7/5/94  
 DATE COMPLETED: 7/5/94  
 GROUNDWATER DEPTH: 12.5 ft  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 1/8"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	0	3				0.3' TOPSOIL; brown SILT w/ some fine sand & clay, dry, friable, hard, plant roots			60	
2		3			SC		8:48	7/5	1	
3	1.5	6	16							
4		5				As Above w/ more clay & tr. wood			60	
5		9			CL		8:49	7/5	1	
6	3	13	15							
7		11				mottled brown CLAY w/ some silt, hard, friable, dry, no plasticity			60	
8		15			CL		8:52	7/5	1	
9	4.5	19	15							
10		7			"	As Above w/ tr. fine sand			60	
11		9					9:03	7/5	1	
12	6	13	14							
13		8				mottled orange/brown CLAY, hard, friable; becoming stiff, low plasticity, dry-sl. moist, micaceous			60	
14		11			"		9:06	7/5	1	
15	7.5	15	14							
16		8				grey/brown/tan CLAY w/ tr. fine sand, stiff-hard, low plasticity, dry-sl. moist			60	
17		15			"		9:14	7/5	1	
18	9	16	17							
19		19				As Above, friable, CLAY & SAND, dry			60	
20		21			SC		9:20	7/5	1	
21	10.5	27	16			last 0.6' - w/ fine rnd. gravel				
22		5				13" as above; then CLAY & fine SAND, sl. moist, med. stiff, low plasticity			60	
23		7					9:36	7/5	1	
24	12	8	15							
25		7				brown CLAY w/ some fine sand, soft, moist,			60	1 rad
26		5			CL		9:42	7/5	1	γ @ 12.5 ft
27	13.5	12	14			last 12" - wet				
						Boring terminated at water table, 12.5 ft.				

NOTES:



LOG OF BORING

PROJECT: MOLYCORP, Inc

BORING NUMBER: SB-056

PROJECT NO: 5330.001

DATE STARTED: 7/5/94

LOCATION: WASHINGTON, PA

DATE COMPLETED: 7/5/94

GEOLOGIST: A. LAFFERTY

GROUNDWATER DEPTH:

DRILLER: TERRA TESTING, INC.

ELEVATION:

DRILLING/SAMPLING METHOD:

4" O.D. SOUD STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		TIME RAD M/L	COMMENTS
							Time	Date		
01	0									
02	0.5	4				BLACK SLAG, RED LOG, REBBLES				
03	1.5	8	11"		FILL	ROCK FRAGMENTS, DRY TO SL. MOIST	0914	7/5/94		
04		33				2" OF WOOD CONTACTING				
05		13				FILL AS ABOVE, DRY TO				
06	3	17	6"		FILL	SL. MOIST	0915	7/5/94		
07		2				DARK GREY TO BLACK SLAG FILL				
08		7				A metal "pellet" contacting 2"				
09	4.5	6	6"		FILL	OF MED BROWN AND TAN TO GREY MOTTLED CLAY. DRY TO SL. MOIST.	0918	7/5/94		
10	10	5				SLAG FILL AS ABOVE, SOME				
11	11	4				BLACK VITRIFIED SLAG FRAGMENTS				
12	6	3	3"		FILL	CONTAINING BROWN AND TAN MOTTLED CLAY WITH ROOT AND SLAG FRAGMENTS	0920	7/5/94	1.5	
13	13	2				CLAY AS ABOVE CONTACTING				
14	14	2				DR. BROWN CLAYEY SILT WITH				
15	7.5	3	11"		ML	WOOD AND ROCK FRAGMENTS CONTACTING 2" OF TAN AND GREY MOTTLED CLAYEY SILT, 4-SWFT, 100 PLAST, DRY TO SL. MOIST, FRAGILE	0927	7/5/94	1.5	
16	15	3				CLAYEY SILT AS ABOVE				
17	17	4								
18	9	5	11"		ML		0930	7/5/94	1.5	
19	19	2				MED. BROWN SILTY CLAY				
20	20	3				SOME ORGANIC MOTTLING. SFT,				
21	10.5	7	9"		CL	FRIBLE, LOW PLASTICITY, DRY TO SL. MOIST.	0933	7/5/94	1.5	
22	22	8				SILTY CLAY AS ABOVE, MUST BE				
23	23	13				CONTACTING 3" weathered tan				
24	12	13	18"		CL/ML	micaceous SS. Fragment @ 11.5' contacting orange and brown mottled silt w/clay, tr. sand, →	0940	7/5/94	1.5	TR. ROUNDED PEBBLES, STIFF
25	25	4				ORANGE BROWN AND LF. GREY				
26	26	4				MOTTLED SILTY CLAY, FRIBLE				
27	13.5	8	12"		CL	LOW PLASTICITY, SLIGHTLY MOIST, MED STIFF.	0953	7/5/94	1.3	
28	28	10				SILTY CLAY AS ABOVE, tr.				
29	29	9				fine micaceous sand, low				
30	15	8	16"		CL	plast, friable, stiff, SL. MOIST.	0955	7/5/94	1.3	

NOTES:

SS = SANDSTONE

LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-056 (cont'd)  
 DATE STARTED: 7/5/94  
 DATE COMPLETED: 7/5/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOILD STEM AUGERS

SAMPLE ID	DEPTH (feet)	BLOWS per 5"	RECO. VERY	PRO. FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		LABORATORY	COMMENTS
							Time	Date		
31	15.9	3								
32	16.4	10	7	8"	CL	SILTY CLAY AS ABOVE WITH a 3" tan micaceous Sandstone fragment @ 15.3', low plast. medium stiff, moist.	1010	7/5/94	1.3	
33	16.5									
34	17.0	8	9	7	15"	LL/ML SILTY CLAY AS ABOVE, CONTACTING ORANGE BROWN to tan SILT, small v. weathered rounded pebbles. low plast. M. stiff. moist to damp	1012	7/5/94	1.0	
35	18.0									
36	18.6					Bottom of Boring @ 18.0 ft.				
	19.5									
	20.0									
	21.0									
	21.5									
	22.5									
	23.0									
	24.0									
	24.5									
	25.5									
	26.0									
	27.0									
	27.5									
	28.0									
	28.5									
	29.0									
	30.0									

NOTES:





LOG OF BORING

PROJECT: MOLYCORP, Inc  
 PROJECT NO: 5330.001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: 53-039  
 DATE STARTED: 7/5/94  
 DATE COMPLETED: 7/5/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

3/4" I.D. HOLLOW STEM AUGERS.

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HMT READ FROM WELINE	COMMENTS
							Time	Date		
01	0.5	3				DK. BROWN SILT w/ CLAY, ROCK FRAGMENTS, BRICK AND PORCELAIN FRAGMENTS, friable, low PLAST, sl. moist		7/5/94	1.7	AT SURFACE
02	1	4	13"		FILL		1055	7/5/94	1.7	
03	1.5	6								
04	2	4				DK. BROWN SILT w/ CLAY with 3" ORANGE TAN weathered micaceous SANDSTONE frags. friable, low PLAST, sl. moist		7/5/94	1.5	
05	3	5	8"		ML		1056	7/5/94	1.5	
06	3	4								
07	4	2				BROWN SILT AS ABOVE CONTACTING med brown and H. BROWN mottled clayey silt friable, low PLAST, soft, sl. moist		7/5/94	1.4	
08	4.5	3	5"		ML		1100	7/5/94	1.4	
09	5	4								
10	6	4				CLAYEY SILT AS ABOVE, low PLAST, friable, med. stiff, moist.		7/5/94	1.4	
11	7	4	11"		ML		1101	7/5/94	1.4	
12	8	5								
13	9	2				DK. BROWN SILTY CLAY, tr. SAND, low PLAST. SOFT, moist		7/5/94	1.6	
14	10	3	13"		CL		1109	7/5/94	1.6	
15	11	4								
16	12	3				SILTY CLAY AS ABOVE, GRADES INTO A MED. BROWN SILTY CLAY, tr. micaceous fine SAND, SOFT, sl. moist.		7/5/94	1.6	
17	13	3	18"		CL		1111	7/5/94	1.6	
18	14	5								
19	15	2				CLAY AS ABOVE, v. soft moist		7/5/94		
20	16	2	2"		CL		1125	7/5/94		
21	17	2								
22	18	2				CLAY AS ABOVE, mottled with sl. grey and black organics, v. soft, moist		7/5/94		
23	19	2	6"		CL		1127	7/5/94		
24	20	2								
25	21	WOR				Grey silt w/ sand, tr. clay, low PLAST. v. soft moist		7/5/94		Small weathered Rock frags. dry, soft.
26	22	1	7"			GRADES TO A FINE GRAY SAND w/ SILT, wet, v. soft contact brown to grey silt w/ clay and →		7/5/94		
27	23	3				BOTTOM OF BORING @ 135	1138			
	24									
	25									
	26									
	27									
	28									
	29									
	30									

NOTES:

LOG OF BORING

PROJECT: MOLYCORP, INC  
 PROJECT NO: 5330-001  
 LOCATION: WASHINGTON, PA  
 GEOLOGIST: A. LAFFERTY  
 DRILLER: TERRA TESTING, INC.  
 DRILLING/SAMPLING METHOD:

BORING NUMBER: SB-0510  
 DATE STARTED: 7/5/94  
 DATE COMPLETED: 7/5/94  
 GROUNDWATER DEPTH:  
 ELEVATION:

4" O.D. SOLID STEM AUGER

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		HNE EAD (ft) INR	COMMENTS
							Time	Date		
28	0.5	3				DK. BROWN SILT WITH CLAY, fr. SMALL ROCK FRAGMENTS, low PLASTICITY, FRIABLE, SOFT, SL. MOIST			15	AT SURFACE
29		3								
30	1.5	3	11"		ML		1338	7/5/94		
31		3				AS ABOVE.				
32		4								
33	3	3	10"		ML		1339	7/5/94	15	
34		1				AS ABOVE				
35		WOR								
36	4.5	1	4"		ML		1340	7/5/94	15	
37	10	1				AS ABOVE, WET				
38	11	1								
39	6 12	2	1"		ML		1341	7/5/94		
	13					BOTTOM OF BORING @ 60'				
	14									
	7.5 15									
	15									
	17									
	9 18									
	19									
	20									
	10.5 21									
	22									
	23									
	12 24									
	25									
	26									
	13.5 27									
	28									
	29									
	15 30									

NOTES:

LOG OF BORING

PROJECT: *Molycorp, Inc* BORING NUMBER: *OS-11*  
 PROJECT NO: *5330--00001* DATE STARTED: *7/12/94*  
 LOCATION: *Washington, PA* DATE COMPLETED: *7/12/94*  
 GEOLOGIST: *P. Anderson* GROUNDWATER DEPTH: *~ 7 ft*  
 DRILLER: *B. Lawrence* ELEVATION:  
 DRILLING/SAMPLING METHOD: *3/4" ID Augers / 2" OD Split spoon*

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECO-VERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1		4				asphalt, slag, grey SAND w/some				
2		7			Fill	brown silt, loose, dry				
3	1.5	8	12				8:00	7/12	9	
4		11			"	As above w/ incr. silt, fly ash, some glass,				
5		5			"	sl. moist-wet				
6	3	9	13				8:02	7/12	10	
7		5			"	As Above; brown CLAY				2 rad
8		4			"	layer, soft, med. plasticity				
9	4.5	4	9			@ 3.5 ft	8:03	7/12	10	
10		4			"	alt. layers of black/grey slag				
11		4			"	brown CLAY w/some silt,				
12	6	5	12			soft, med. plasticity, sl. moist	8:13	7/12	9	
		—	—			—	—	—	—	
	7.5									
						Augers hit refusal @ 7.5 ft. No more sampling at this location; 11 samples collected. Estimated water table depth is 7 ft				

NOTES:

LOG OF BORING

PROJECT: MolyCorp, Inc  
 PROJECT NO: 5330 - - 00001  
 LOCATION: Washington, PA  
 GEOLOGIST: P. Anderson  
 DRILLER: B. Lawrence  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers / 2" OD Split spoon

BORING NUMBER: 05-12  
 DATE STARTED: 7/12/94  
 DATE COMPLETED: 7/12/94  
 GROUNDWATER DEPTH: ≈ 9ft  
 ELEVATION:

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 18"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1	0	3				Slag, grey SAND w/ layer of fine brown sand (~1ft), fly ash, loose, dry	8:04	7/12	9	
2		4			Fill					
3	1.5	7	13							
4		4				brown CLAY w/ tr. silt, dry, soft, med. plasticity	8:05	7/12	9	2 rad
5		2			CL (fill)					
6	3	5	10							
7		3				As Above, wet-sil. moist, soft-stiff; incr. fine SAND w/ depth	8:08	7/12	10	
8		5			CL (fill)					
9	4.5	6	17							
10		6				black slag; tan/brown CLAY w/ silt, moist; grading to hard CLAY w/ some f. brown sand & red brick, dry	8:15	7/12	9	
11		8			Fill					
12	6	8	18							
13		4				As Above, little recovery	8:27	7/12	10	2 rad
14		8			"					
15	7.5	9	3							
16		9				No Recovery	8:29	7/12	-	
17		10			-					
18	9	11			-					
						∇ estimated at 9ft				

NOTES:



LOG OF BORING

PROJECT: Molycorp, Inc. BORING NUMBER: 05-13  
 PROJECT NO: 5330 — — 00001 DATE STARTED: 7/12/94  
 LOCATION: Washington, PA DATE COMPLETED: 7/12/94  
 GEOLOGIST: P. Anderson GROUNDWATER DEPTH: 8 ft  
 DRILLER: B. Lawrence ELEVATION:  
 DRILLING/SAMPLING METHOD: 3 1/4" ID Augers / 2" OD Split spoon

SAMPLE ID	DEPTH (feet)	BLOWS per 6"	RECOVERY 118"	PRO-FILE	USCS CLASS	MATERIAL DESCRIPTION	COLLECTION		CPM uR/h	COMMENTS
							Time	Date		
1		18				asphalt; angular medium GRAVEL subbase & RR slag;				
2		12			Fill	grey fine SAND, dense, dry	9:20	7/12	10	
3	1.5	13	15							
4		18				Fill AS ABOVE				
5		16			"					
6	3	71	14				9:23	7/12	9	
7		57				grey CLAY & brown fine SAND,				
8		29			"	RR slag, hard-dense, dry; black				
9	4.5	14	16			fine SANDS SILT w/ fly ash & brick fragments, silty, moist, dense	9:28	7/12	10	
10		11				Little				1 rad
11		9				Recovery				Σ @ 8 ft
12	6	6	—				9:30	7/12	—	
13		2				No				
14		2				Recovery				
15	7.5	4	—				9:50	7/12	—	

NOTES:

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