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Eagle Project

Environmental Baseline Study
Hydrology Report

Volume II
Appendices

Prepared for

**Kennecott Minerals Company
And Golder Associates Inc.
September 2005**

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APPENDIX A

Piezometer / Monitoring Well Construction Summary and Boring Logs

Appendix A
Piezometer / Monitoring Well Construction Summary
Quaternary Deposit
Eagle Project

Well ID	Description	Ground Surface	Top of Riser	Screened Interval	
		(ft MSL)	(ft MSL)	(ft MSL)	
QAL001A	Monitoring Well	1460	1462.92	1405	1395
QAL001D	Monitoring Well	1460	1462.81	1380	1375
QAL002A	Monitoring Well	1477	1479.54	1427	1417
QAL002D	Monitoring Well	1477	1479.21	1342	1337
QAL003A	Monitoring Well	1434	1436.95	1414	1404
QAL003B	Monitoring Well	1434	1436.48	1391	1386
QAL004A	Monitoring Well	1448	1451.09	1403	1393
QAL004D	Monitoring Well	1448	1450.94	1308	1303
QAL005A	Monitoring Well	1457	1459.74	1442	1432
QAL005D	Monitoring Well	1457	1459.59	1334	1329
QAL006A	Monitoring Well	1421	1423.92	1406	1396
QAL006B	Monitoring Well	1421	1424.33	1346	1341
QAL007A	Monitoring Well	1476	1479.34	1430	1420
QAL007D	Monitoring Well	1476	1479.45	1301	1296
QAL008A	Monitoring Well	1465	1468.19	1385	1375
QAL008D	Monitoring Well	1465	1467.92	1350	1345
QAL009A	Monitoring Well	1455	1457.41	1355	1345
QAL009D	Monitoring Well	1455	1457.35	1315	1310
QAL010A	Monitoring Well	1442	1444.55	1404	1394
QAL011A	Pump Test Well	1449	1452.31	1416	1404
QAL011D	Pump Test Well	1449	1452.40	1328	1314
QAL012A	Pump Test Well	1450	1452.30	1415	1405
QAL012D	Pump Test Well	1450	1452.42	1318	1313
QAL013A	Pump Test Well	1451	1452.88	1412	1402
QAL013D	Pump Test Well	1451	1452.82	1332	1327
QAL014A	Pump Test Well	1448	1450.57	1408	1398
QAL014D	Pump Test Well	1448	1450.38	1314	1309
QAL015	Seep Piezometer	1294	1296.09	1292	1289
QAL016	Seep Piezometer	1274	1275.73	1272	1269
QAL017	Seep Piezometer	1252	1255.39	1252	1248
QAL018	Seep Piezometer	1249	1253.47	1246	1242
QAL019	Seep Piezometer	1285	1288.68	1285	1281
QAL020	Seep Piezometer	1335	1338.70	1335	1331
QAL021	Seep Piezometer	1389	1392.19	1388	1385
QAL022	Seep Piezometer	1298	1300.95	1297	1294
QAL023B	Monitoring Well	1418	1421.39	1391	1386

MSL Mean sea level

Appendix A
Piezometer Construction Summary
Wetland Deposit
Eagle Project

Well ID	Description	Ground Surface	Top of Riser	Screened Interval	
		(ft MSL)	(ft MSL)	(ft MSL)	
WLD001	Wetland Piezometer	1429	1430.41	1426	1422
WLD002	Wetland Piezometer	1431	1433.12	1428	1425
WLD003	Wetland Piezometer	1434	1435.66	1431	1428
WLD004	Wetland Piezometer	1446	1448.91	1444	1441
WLD005	Wetland Piezometer	1451	1453.50	1449	1446
WLD006	Wetland Piezometer	1456	1459.29	1455	1451
WLD007	Wetland Piezometer	1451	1453.70	1449	1446
WLD008	Wetland Piezometer	1454	1456.60	1452	1449
WLD009	Wetland Piezometer	1457	1460.17	1455	1452
WLD010	Wetland Piezometer	1448	1450.90	1446	1443
WLD011	Wetland Piezometer	1447	1449.51	1446	1443
WLD012	Wetland Piezometer	1446	1448.60	1444	1441
WLD013	Wetland Piezometer	1445	1447.81	1443	1440
WLD014	Wetland Piezometer	1441	1443.47	1439	1435
WLD015	Wetland Piezometer	1429	1431.28	1427	1423
WLD016	Wetland Piezometer	1428	1432.34	1428	1424
WLD017	Wetland Piezometer	1424	1427.70	1423	1420
WLD018	Wetland Piezometer	1423	1427.34	1423	1419
WLD019	Wetland Piezometer	1422	1424.93	1420	1417
WLD020	Wetland Piezometer	1421	1424.13	1419	1416
WLD021	Wetland Piezometer	1418	1420.58	1416	1413
WLD022	Wetland Piezometer	1423	1425.66	1421	1418
WLD023	Wetland Piezometer	1414	1416.42	1412	1408

MSL Mean sea level

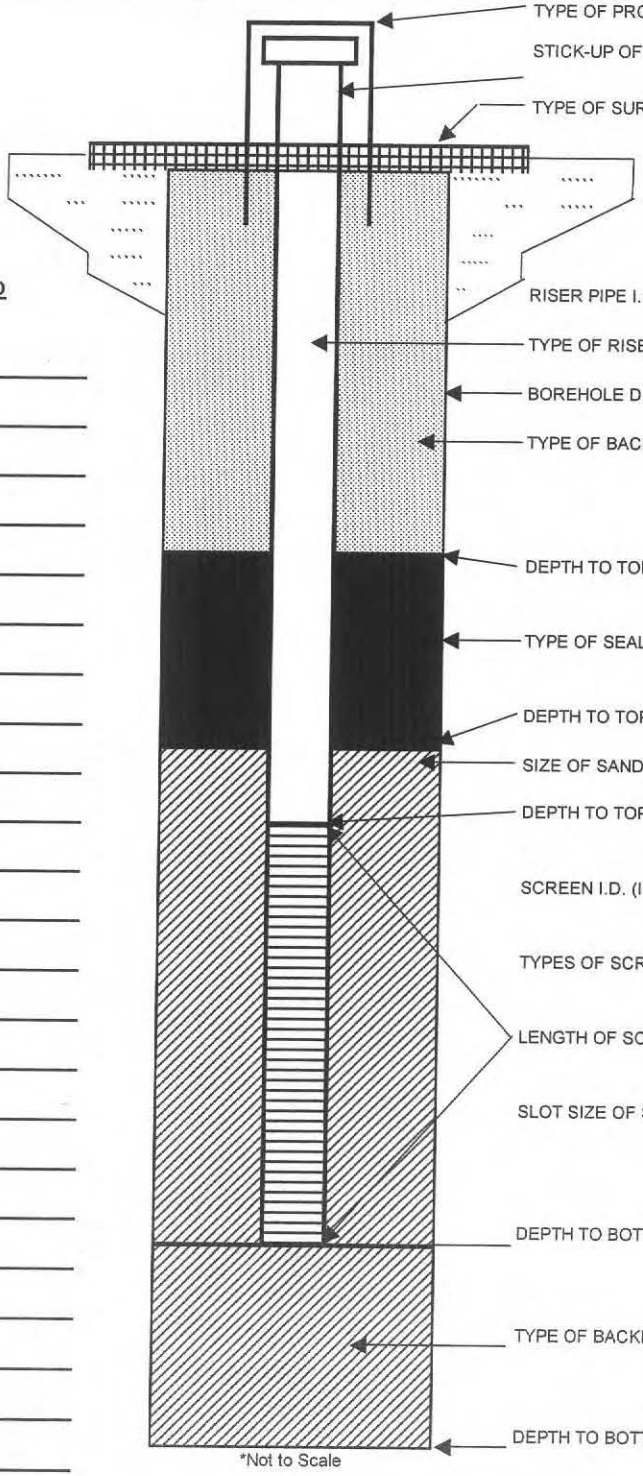
Appendix A
Monitoring Well Construction Summary
Bedrock
Eagle Project

Well ID	Description	Ground Surface	Top of Riser	Open Hole Interval		Bedrock Surface	Total Depth
		(ft MSL)	(ft MSL)	(ft MSL)		(ft MSL)	(ft BGS)
04EA054A	Pump Test Well	1418.3	1418.77	1376.3	1338.3	1380.3	80
04EA054B	Pump Test Well	1418.3	1418.77	1376.3	1318.3	1380.3	100
04EA054C	Pump Test Well	1418.3	1418.77	1376.3	1258.3	1380.3	160
04EA054D	Pump Test Well	1418.3	1418.77	1376.3	1138.3	1380.3	280
04EA054E	Pump Test Well	1418.3	1418.77	1376.3	898.3	1380.3	520

MSL Mean sea level

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Sealley (chief)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	3/24/04
BORING NUMBER	QAL-001A	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	surging/overpumping



TYPE OF PROTECTIVE COVER	Primed steel
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	Cement
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	Sched. 40 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	portland cement
DEPTH TO TOP OF SEAL (FEET)	48'
TYPE OF SEAL	bentonite chips
DEPTH TO TOP OF SAND PACK (FEET)	52'
SIZE OF SAND PACK	Global #5
DEPTH TO TOP OF SCREEN (FEET)	55'
SCREEN I.D. (INCHES)	2.0
TYPES OF SCREEN	continuous slot PVC
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	0.010
DEPTH TO BOTTOM OF SCREEN (FEET)	65'
TYPE OF BACKFILL BELOW SCREEN	—
DEPTH TO BOTTOM OF H OLE (FEET)	65'

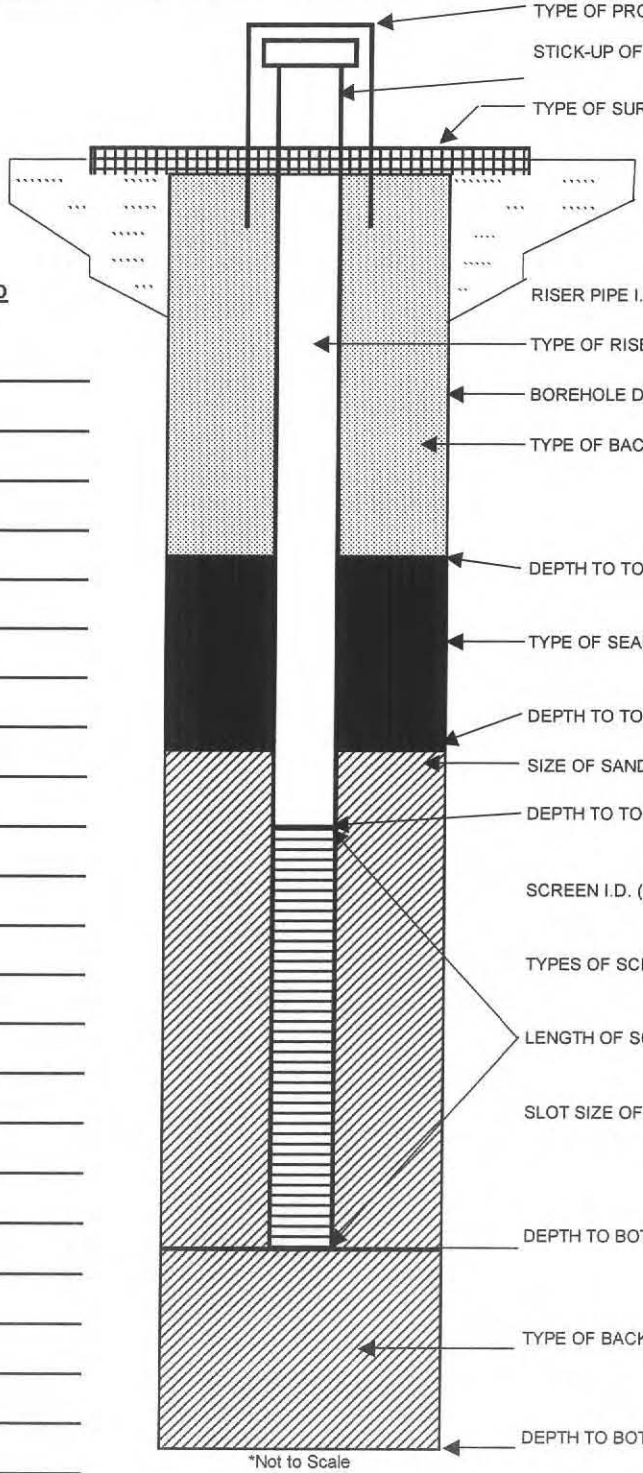
*Not to Scale

WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
'TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
JARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Sealley (chief)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	3/24/04
BORING NUMBER	QAL-001D	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	Surging/overpumping



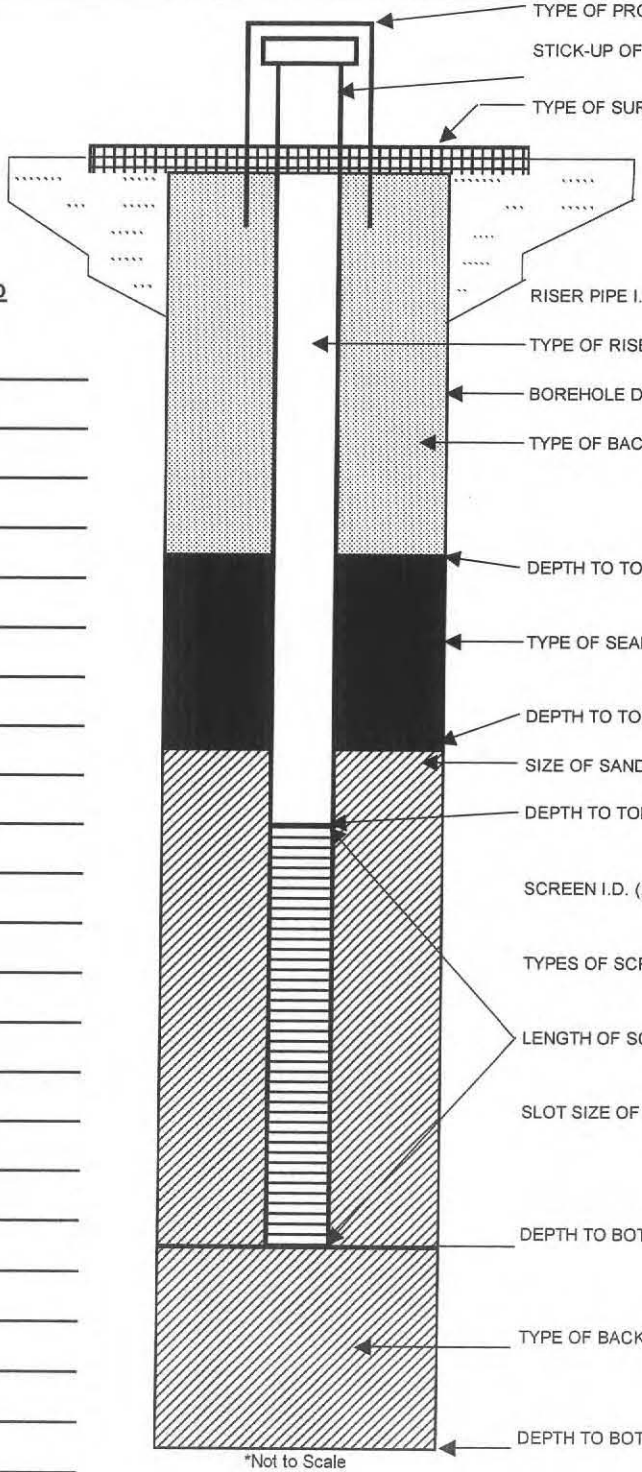
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WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
)TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
_JARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Sealley (chief)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	3/21/04
BORING NUMBER	OAL-002A	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	surging/overpumping



TYPE OF PROTECTIVE COVER: prime & steel
STICK-UP OF RISER PIPE: 3'
TYPE OF SURFACE SEAL: Cement

RISER PIPE I.D. (INCHES): 2" sched 40 PVC
TYPE OF RISER PIPE: "
BOREHOLE DIAMETER (INCHES): 6"
TYPE OF BACKFILL: #8 pellets Hand cement

DEPTH TO TOP OF SEAL (FEET): 43'
TYPE OF SEAL: bentonite chips

DEPTH TO TOP OF SAND PACK (FEET): 47'
SIZE OF SAND PACK: Global #5

DEPTH TO TOP OF SCREEN (FEET): 50'
SCREEN I.D. (INCHES): 2.0
TYPES OF SCREEN: continuous slot PVC
LENGTH OF SCREEN (FEET): 10'
SLOT SIZE OF SCREEN (INCHES): 0.010

DEPTH TO BOTTOM OF SCREEN (FEET): 60'
TYPE OF BACKFILL BELOW SCREEN: —
DEPTH TO BOTTOM OF H OLE (FEET): 60'

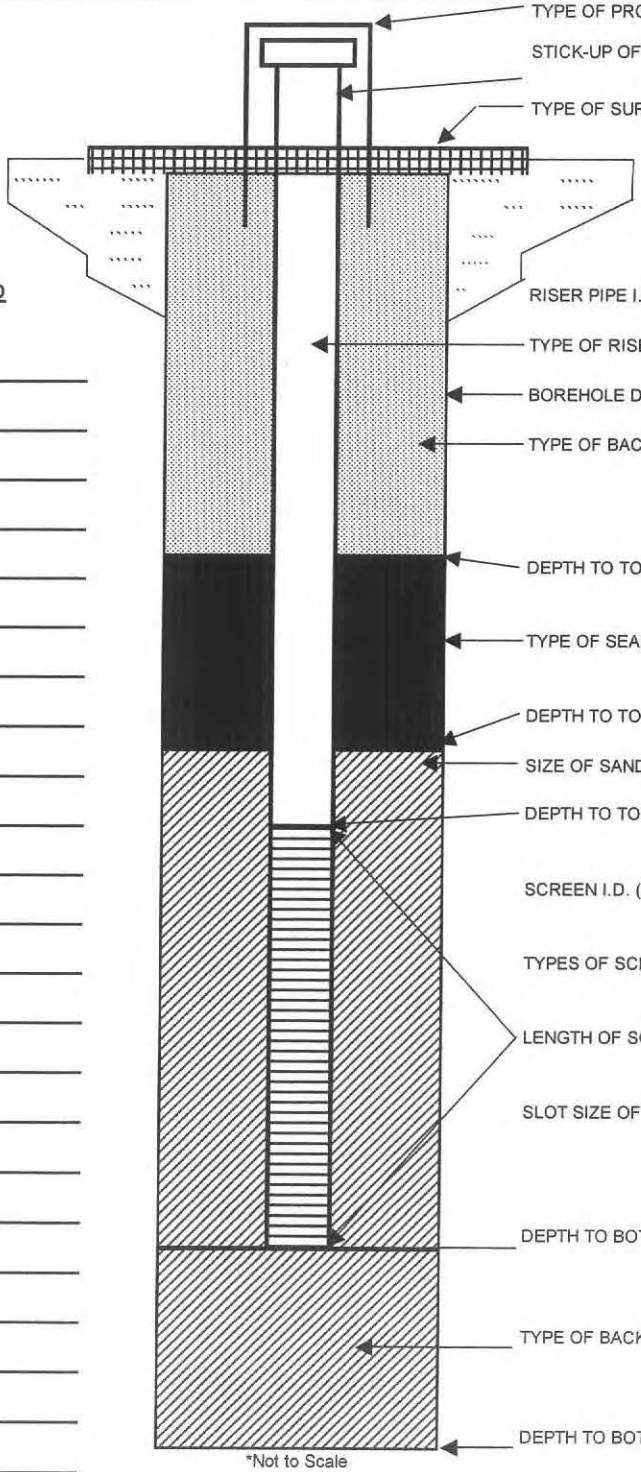
*Not to Scale

WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
NNER GLOVES	
UARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Sealley (Chief)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	3/21/04
PROJECT NUMBER	2354908		
BORING NUMBER	QAL-002D	DEVELOPMENT METHOD	Surging/overpumping



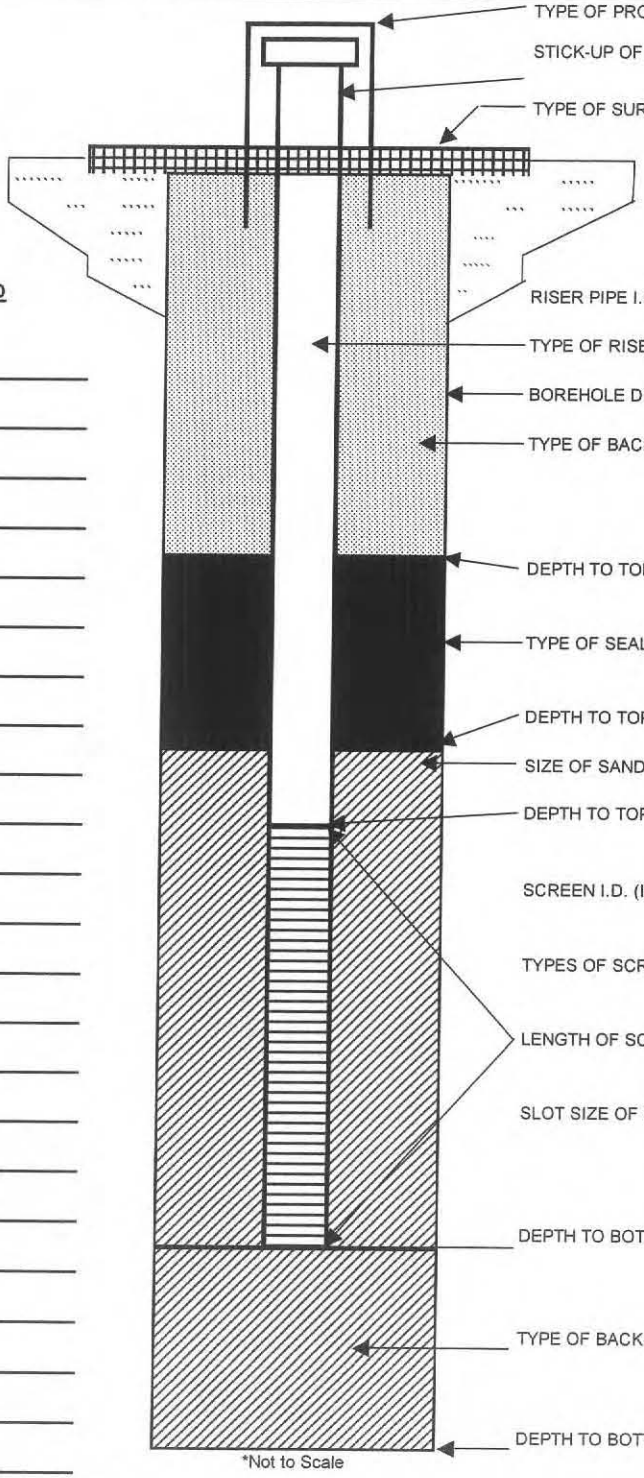
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WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
'TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
'NNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Sealley (Chief)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	3/22/04
BORING NUMBER	QAL-003A	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	Surging/overpumping



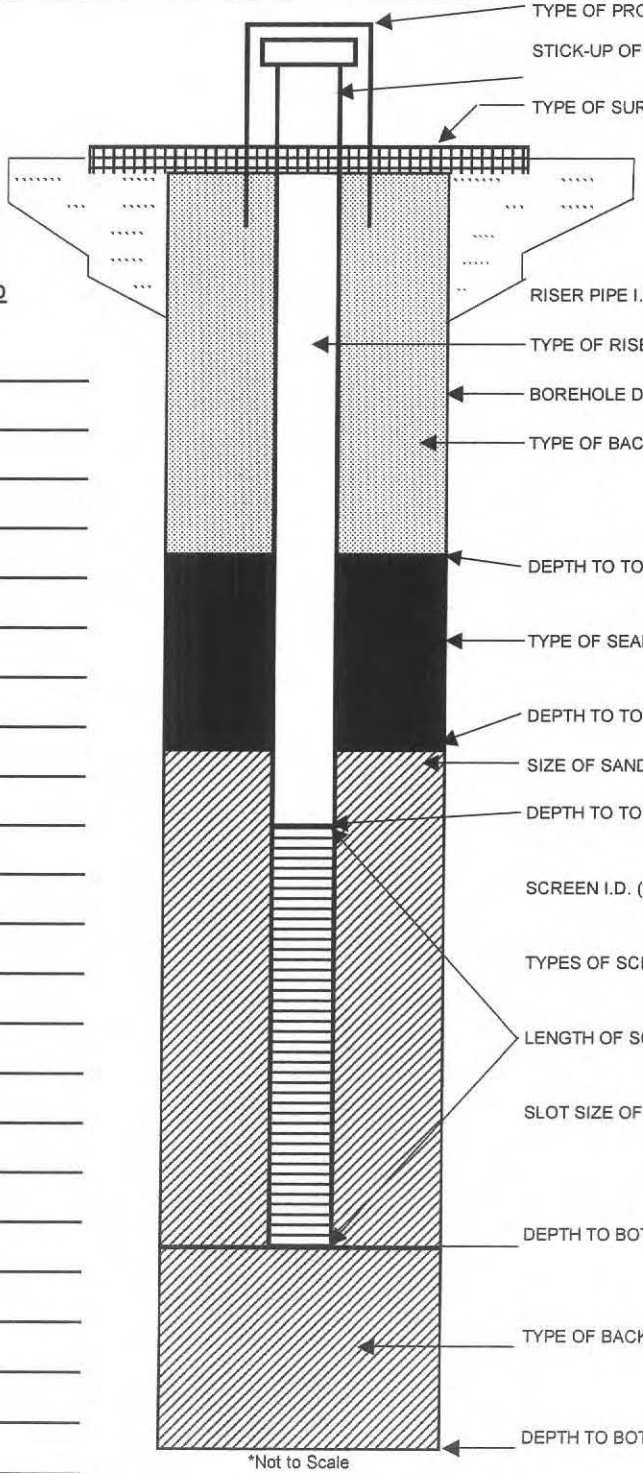
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WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
)TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
-UARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Sealley (Chief)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	3/22/04
BORING NUMBER	QAL-003B	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	Surging/overpumping



TYPE OF PROTECTIVE COVER: primed steel
STICK-UP OF RISER PIPE: 3'
TYPE OF SURFACE SEAL: cement

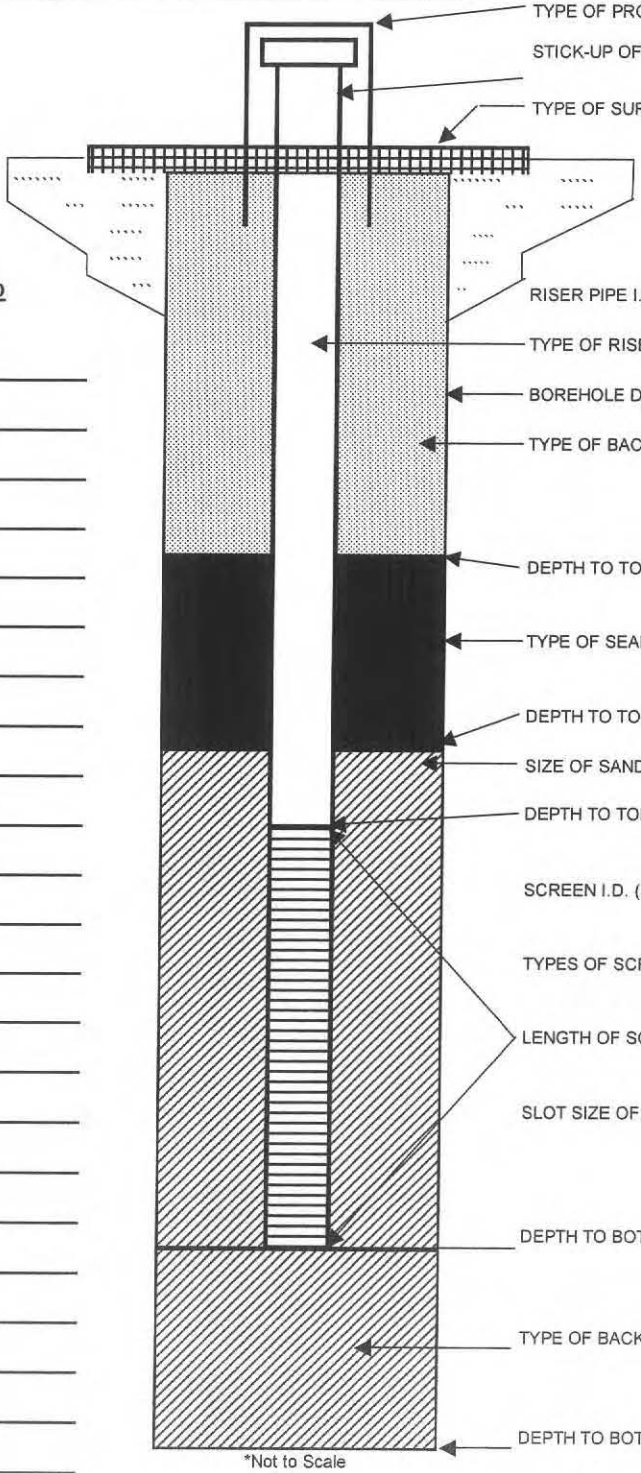
WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
'TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

RISER PIPE I.D. (INCHES): 2½"
TYPE OF RISER PIPE: sched 80 PVC
BOREHOLE DIAMETER (INCHES): 6"
TYPE OF BACKFILL: portland cement
DEPTH TO TOP OF SEAL (FEET): 36'
TYPE OF SEAL: bentonite chips
DEPTH TO TOP OF SAND PACK (FEET): 40'
SIZE OF SAND PACK: Global #5
DEPTH TO TOP OF SCREEN (FEET): 43'
SCREEN I.D. (INCHES): ~~2.0~~ 2.3
TYPES OF SCREEN: continuous slot PVC
LENGTH OF SCREEN (FEET): 5'
SLOT SIZE OF SCREEN (INCHES): 0.010
DEPTH TO BOTTOM OF SCREEN (FEET): 48'
TYPE OF BACKFILL BELOW SCREEN: bentonite chips
DEPTH TO BOTTOM OF H OLE (FEET): 65'

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald & Sealley (Chick)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	3/30/04
BORING NUMBER	QAL-004A	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	surging/overpumping



TYPE OF PROTECTIVE COVER	Painted Steel
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	cement
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	Sched 40 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	portland cement
DEPTH TO TOP OF SEAL (FEET)	38'
TYPE OF SEAL	bentonite chips
DEPTH TO TOP OF SAND PACK (FEET)	42'
SIZE OF SAND PACK	Global #5
DEPTH TO TOP OF SCREEN (FEET)	45'
SCREEN I.D. (INCHES)	2.0
TYPES OF SCREEN	continuous slot PVC
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	0.010
DEPTH TO BOTTOM OF SCREEN (FEET)	55'
TYPE OF BACKFILL BELOW SCREEN	—
DEPTH TO BOTTOM OF H OLE (FEET)	55'

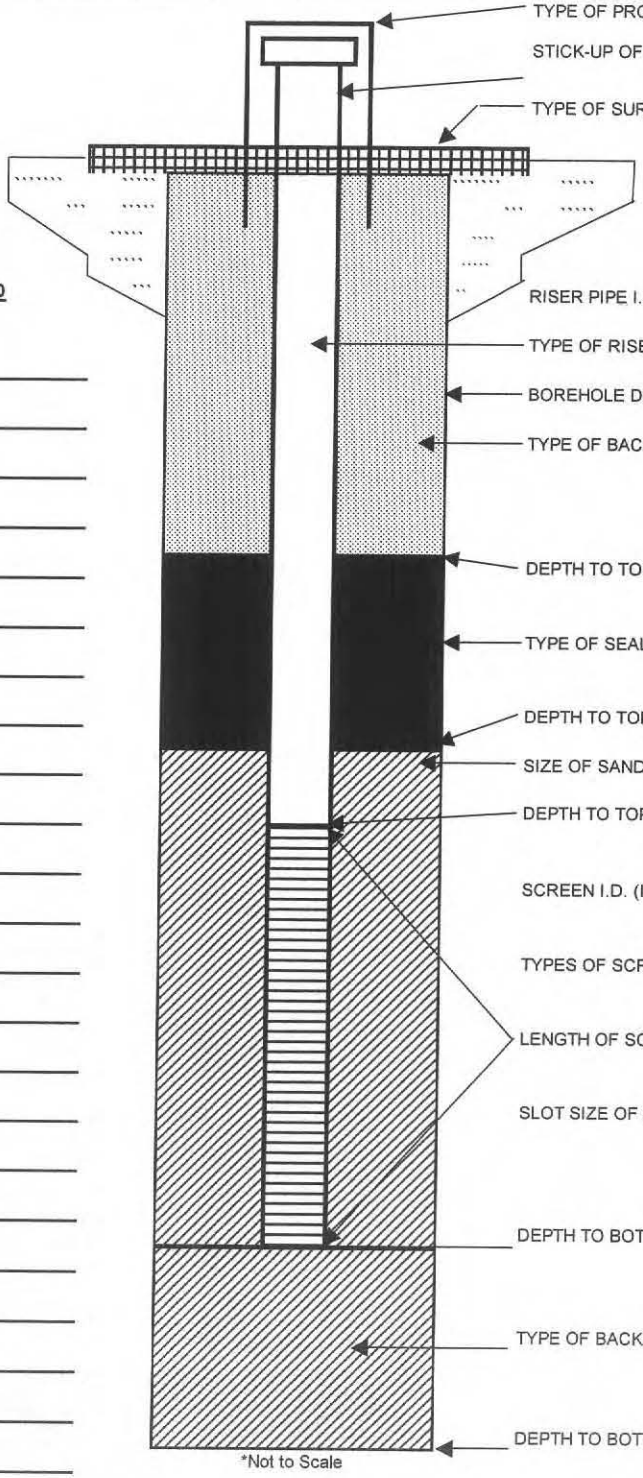
*Not to Scale

WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
?TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
JARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	**DRILL TEAM**	Gerald Sealey (Chief)
PROJECT NAME	EAGLE	**DRILLING METHOD**	Sonic Rig
LOCATION	Michigan	**DATE**	3/30/04
BORING NUMBER	QAL-0041D	**PROJECT NUMBER**	2354908
		DEVELOPMENT METHOD	Surging/overpumping



*Not to Scale

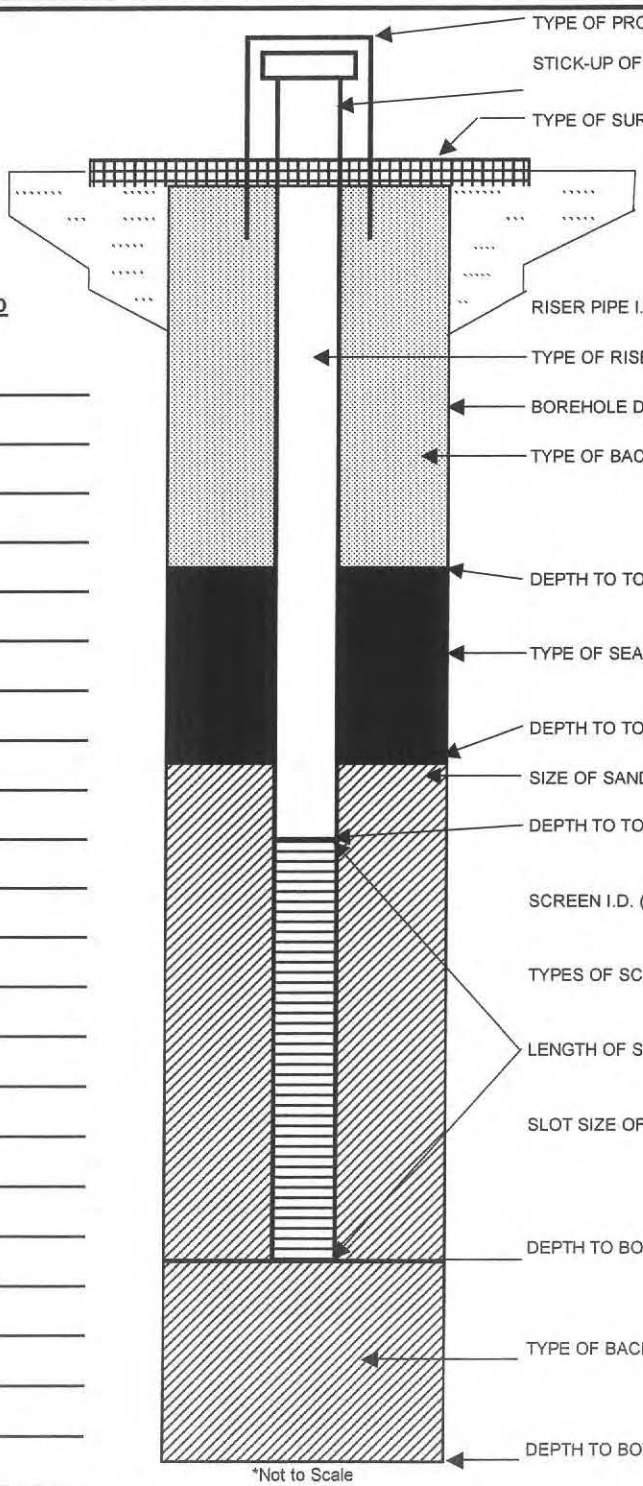
TYPE OF PROTECTIVE COVER	primed steel
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	cement
RISER PIPE I.D. (INCHES)	2½"
TYPE OF RISER PIPE	sched 80 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	portland cement
DEPTH TO TOP OF SEAL (FEET)	133'
TYPE OF SEAL	bentonite chips
DEPTH TO TOP OF SAND PACK (FEET)	137'
SIZE OF SAND PACK	Global #5
DEPTH TO TOP OF SCREEN (FEET)	140'
SCREEN I.D. (INCHES)	2.3 ~~2.0~~
TYPES OF SCREEN	continuous slot PVC
LENGTH OF SCREEN (FEET)	5'
SLOT SIZE OF SCREEN (INCHES)	0.010
DEPTH TO BOTTOM OF SCREEN (FEET)	145'
TYPE OF BACKFILL BELOW SCREEN	bentonite chips
DEPTH TO BOTTOM OF H OLE (FEET)	158'

WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
)TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
-JARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Sealkey (Chief)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	4/1/04
BORING NUMBER	QAL-005A	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	surging/overpumping



TYPE OF PROTECTIVE COVER	primed steel
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	cement
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	Sched. 40 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	bentonite chips
DEPTH TO TOP OF SEAL (FEET)	8'
TYPE OF SEAL	bentonite chips
DEPTH TO TOP OF SAND PACK (FEET)	12'
SIZE OF SAND PACK	Global #5
DEPTH TO TOP OF SCREEN (FEET)	15'
SCREEN I.D. (INCHES)	2.0
TYPES OF SCREEN	continuous slot PVC
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	0.010
DEPTH TO BOTTOM OF SCREEN (FEET)	25'
TYPE OF BACKFILL BELOW SCREEN	—
DEPTH TO BOTTOM OF H OLE (FEET)	25'

*Not to Scale

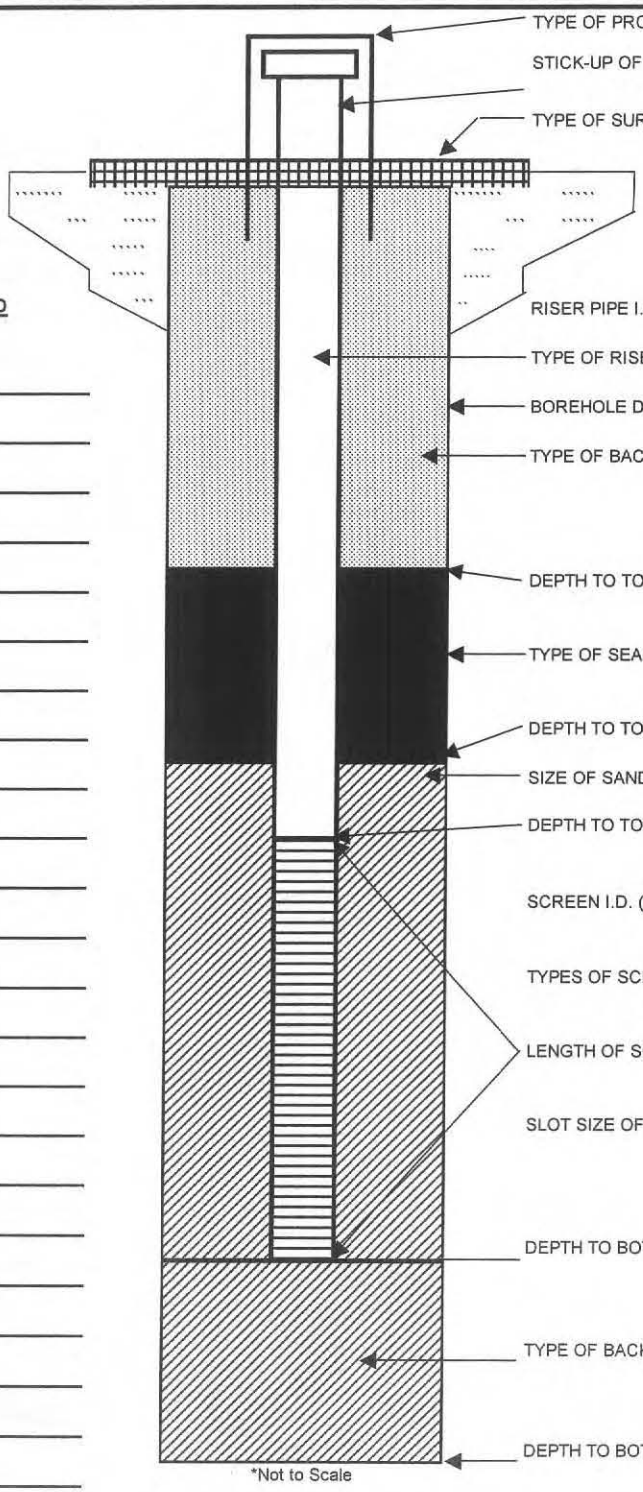
WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
?TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
JARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton MI
MONITORING WELL LOG

CLIENT NAME: Kennecott
PROJECT NAME: EAGLE
LOCATION: Michigan
BORING NUMBER: QAL-005D

DRILL TEAM: Gerald Sealley (Chief)
DRILLING METHOD: Sonic Rig
DATE: 4/1/04
PROJECT NUMBER: 2354908
DEVELOPMENT METHOD: Surging/pumping

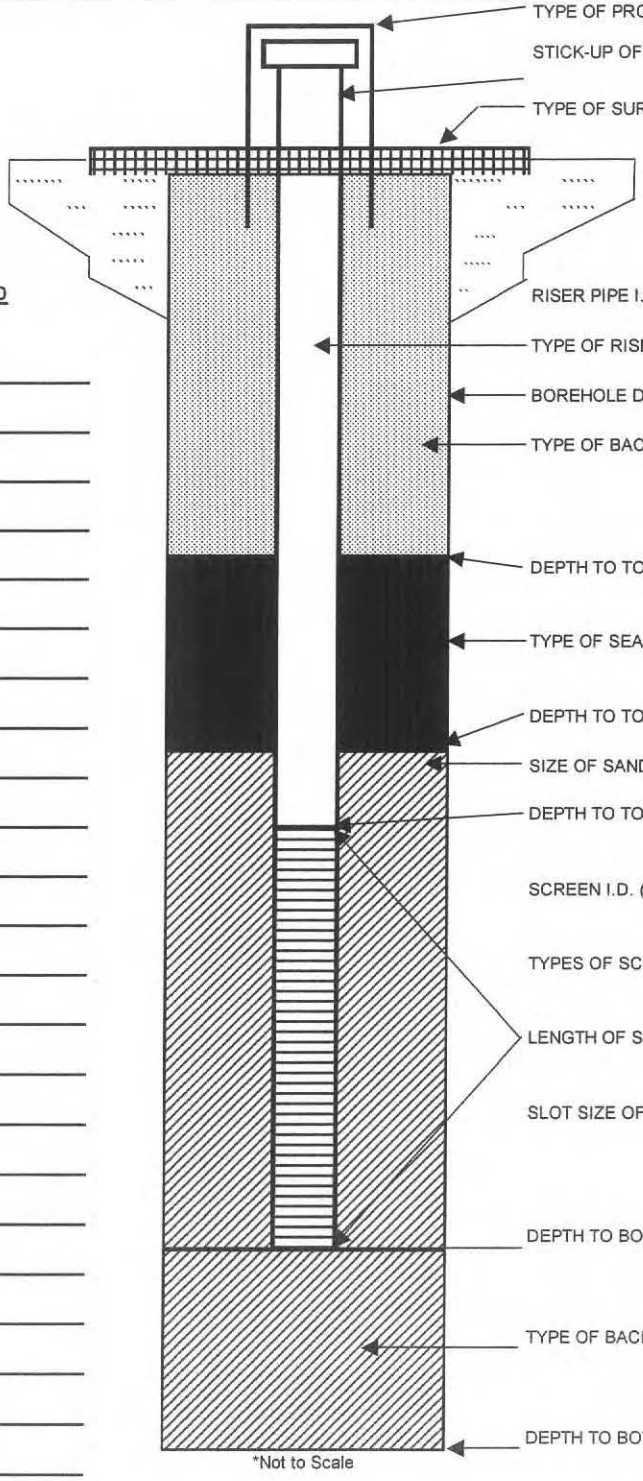


WELL MATERIALS USED

FEET OF 5 FOOT RISER _____
FEET OF 10 FOOT RISER _____
FEET OF SCREEN _____
PUSH ON CAPS _____
)TTOM PLUGS _____
LOCKING PLUGS _____
LOCKS _____
BAGS OF SAND _____
BAGS OF HOLE PLUG _____
BUCKETS OF PELLETS _____
BAGS OF BENTONITE GEL _____
BAGS OF CEMENT _____
BAGS OF CONCRETE MIX _____
STAND UP COVERS _____
MANHOLE COVERS _____
55 GALLON DRUMS _____
FEET OF SURFACE CASING _____
ROLLS OF PLASTIC _____
TYVEK SUITS _____
OUTER GLOVES _____
INNER GLOVES _____
JUARD POSTS _____
OTHER _____
OTHER _____

PROSONIC® CORPORATION, Fenton MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Scalley (Chief)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	4/3/04
BORING NUMBER	QAL-0006A	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	Surging/overpumping



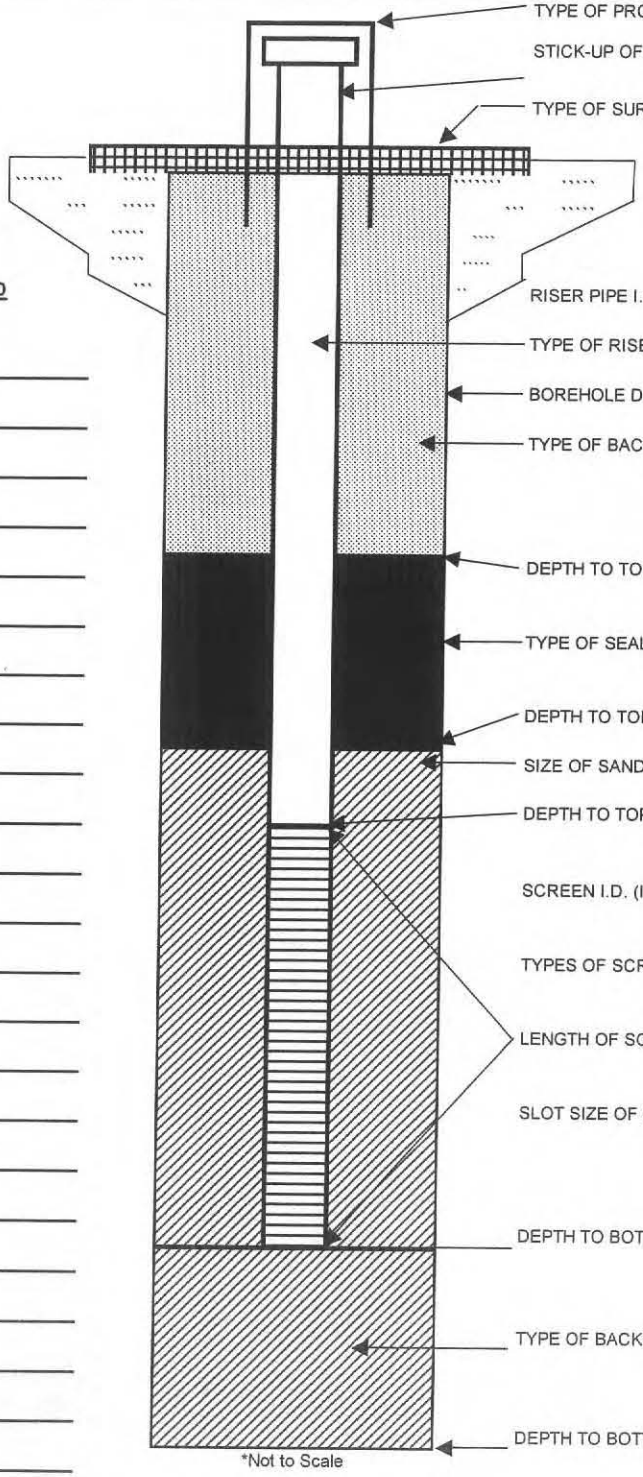
TYPE OF PROTECTIVE COVER	Primed Steel
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	Cement
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	Sched. 40 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Bentonite chips
DEPTH TO TOP OF SEAL (FEET)	8'
TYPE OF SEAL	bentonite chips
DEPTH TO TOP OF SAND PACK (FEET)	12'
SIZE OF SAND PACK	Global #5
DEPTH TO TOP OF SCREEN (FEET)	15'
SCREEN I.D. (INCHES)	2.0
TYPES OF SCREEN	continuos slot PVC
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	0.010
DEPTH TO BOTTOM OF SCREEN (FEET)	25'
TYPE OF BACKFILL BELOW SCREEN	—
DEPTH TO BOTTOM OF H OLE (FEET)	25'

WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
OTTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION, Fenton, MI
MONITORING WELL LOG

CLIENT NAME	Kennecott	DRILL TEAM	Gerald Sealle, (Chet)
PROJECT NAME	EAGLE	DRILLING METHOD	Sonic Rig
LOCATION	Michigan	DATE	4/3/04
BORING NUMBER	QAL-006 B	PROJECT NUMBER	2354908
		DEVELOPMENT METHOD	Surging / overpumping



*Not to Scale

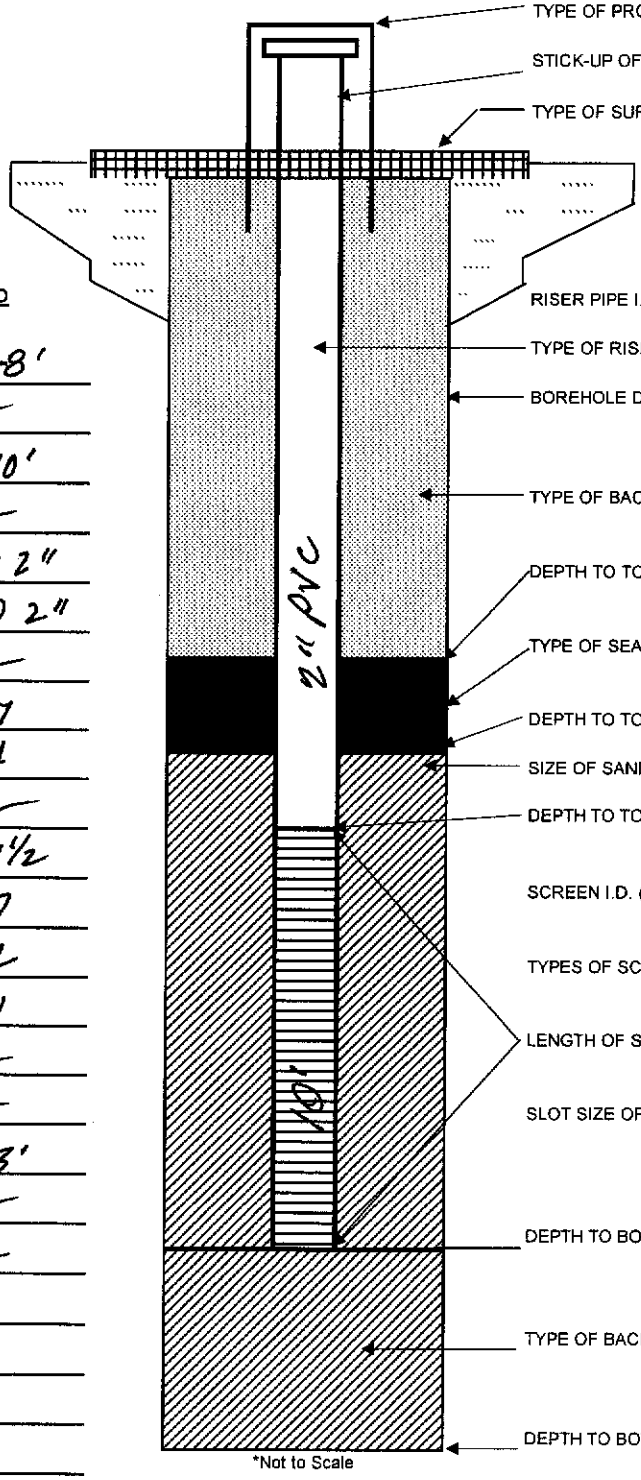
TYPE OF PROTECTIVE COVER	primed steel
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	cement
RISER PIPE I.D. (INCHES)	2½"
TYPE OF RISER PIPE	Sched. 80 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	portland cement
DEPTH TO TOP OF SEAL (FEET)	68'
TYPE OF SEAL	bentonite chips
DEPTH TO TOP OF SAND PACK (FEET)	72'
SIZE OF SAND PACK	Global #5
DEPTH TO TOP OF SCREEN (FEET)	75'
SCREEN I.D. (INCHES)	2.3
TYPES OF SCREEN	continuous slot PVC
LENGTH OF SCREEN (FEET)	5'
SLOT SIZE OF SCREEN (INCHES)	0.010
DEPTH TO BOTTOM OF SCREEN (FEET)	80'
TYPE OF BACKFILL BELOW SCREEN	bentonite chips
DEPTH TO BOTTOM OF H OLE (FEET)	165'

WELL MATERIALS USED

FEET OF 5 FOOT RISER	
FEET OF 10 FOOT RISER	
FEET OF SCREEN	
PUSH ON CAPS	
)TTOM PLUGS	
LOCKING PLUGS	
LOCKS	
BAGS OF SAND	
BAGS OF HOLE PLUG	
BUCKETS OF PELLETS	
BAGS OF BENTONITE GEL	
BAGS OF CEMENT	
BAGS OF CONCRETE MIX	
STAND UP COVERS	
MANHOLE COVERS	
55 GALLON DRUMS	
FEET OF SURFACE CASING	
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
JARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT EXPLORATION	DRILL TEAM	JAMES S. DON B. JIM V.
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	B.G BAY, MI.	DATE	10-8-04
PROJECT NUMBER	2354928		
BORING NUMBER	QAL007A	DEVELOPMENT METHOD	PUMP surge ~~BAIL~~ 220 gal



*Not to Scale

TYPE OF PROTECTIVE COVER	4" STEEL
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	CONCRETE
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	SCH. 40 PVC.
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Cement Bent grout
DEPTH TO TOP OF SEAL (FEET)	39'
TYPE OF SEAL	3/8" Hole Plug
DEPTH TO TOP OF SAND PACK (FEET)	42'
SIZE OF SAND PACK	K&E #1 SKNCD
DEPTH TO TOP OF SCREEN (FEET)	~~BAIL~~ 45.5
SCREEN I.D. (INCHES)	2"
TYPES OF SCREEN	SCH 40. .020 MACHINE SLOT
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	55.5
TYPE OF BACKFILL BELOW SCREEN	NATIVE/SAND
DEPTH TO BOTTOM OF HOLE (FEET)	56'

WELL MATERIALS USED

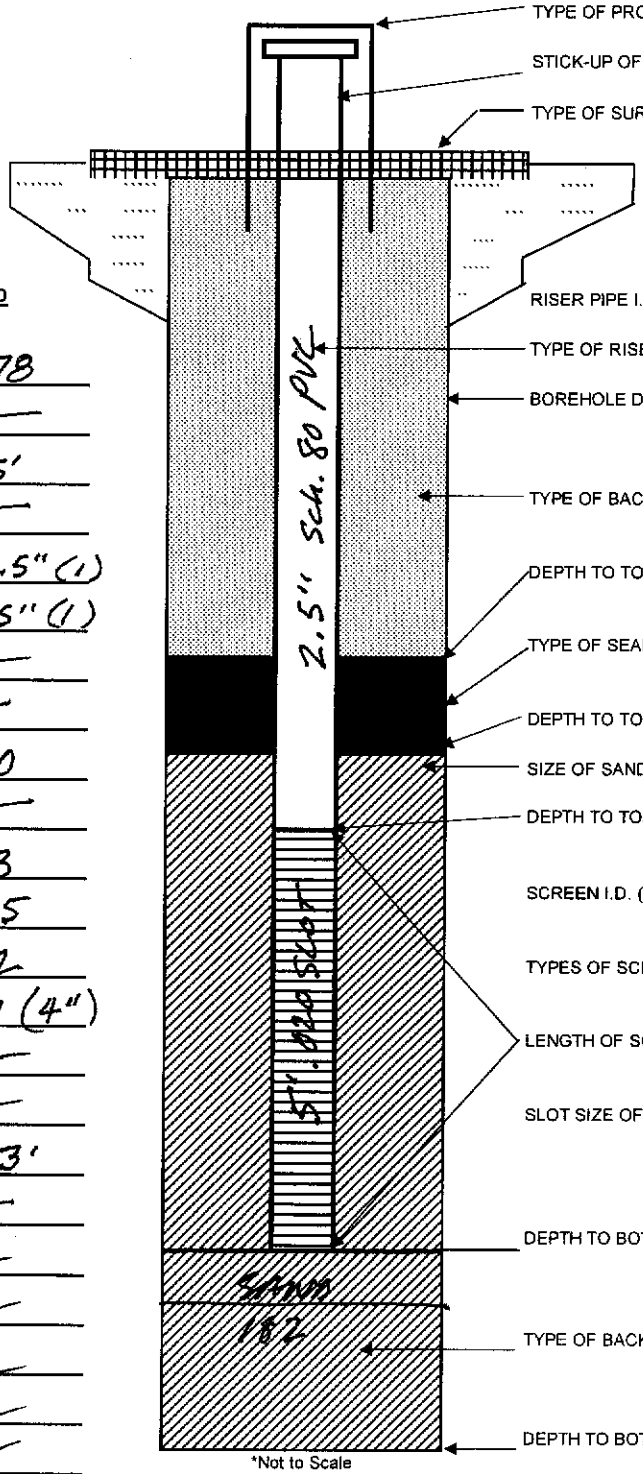
FEET OF ~~5 FOOT~~ RISER	48'
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	10'
PUSH ON CAPS	—
BOTTOM PLUGS	(1) 2"
LOCKING PLUGS	(1) 2"
LOCKS	—
BAGS OF SAND	7
BAGS OF HOLE PLUG	4
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	1½
BAGS OF CEMENT	7
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3'
ROLLS OF PLASTIC	—
TYVEK SUITS	—
OUTER GLOVES	—
INNER GLOVES	—
GUARD POSTS	—
OTHER	—
OTHER	—

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	Kennecott Exploration	DRILL TEAM	James S. Jim V. Don Bond
PROJECT NAME	Eagle	DRILLING METHOD	Sonic
LOCATION	B. G Bay, MI.	DATE	10-8-04
PROJECT NUMBER	2354928		
BORING NUMBER	QAL007D	DEVELOPMENT METHOD	Air 480 cfm.

WELL MATERIALS USED

FEET OF ~~5 FOOT~~ RISER	178
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	5'
PUSH ON CAPS	—
BOTTOM PLUGS	2.5" (1)
LOCKING PLUGS	2.5" (1)
LOCKS	—
BAGS OF SAND	5
BAGS OF HOLE PLUG	20
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	3
BAGS OF CEMENT	15
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1 (4")
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3'
ROLLS OF PLASTIC	—
TYVEK SUITS	—
OUTER GLOVES	—
INNER GLOVES	—
GUARD POSTS	—
OTHER	—
OTHER	—

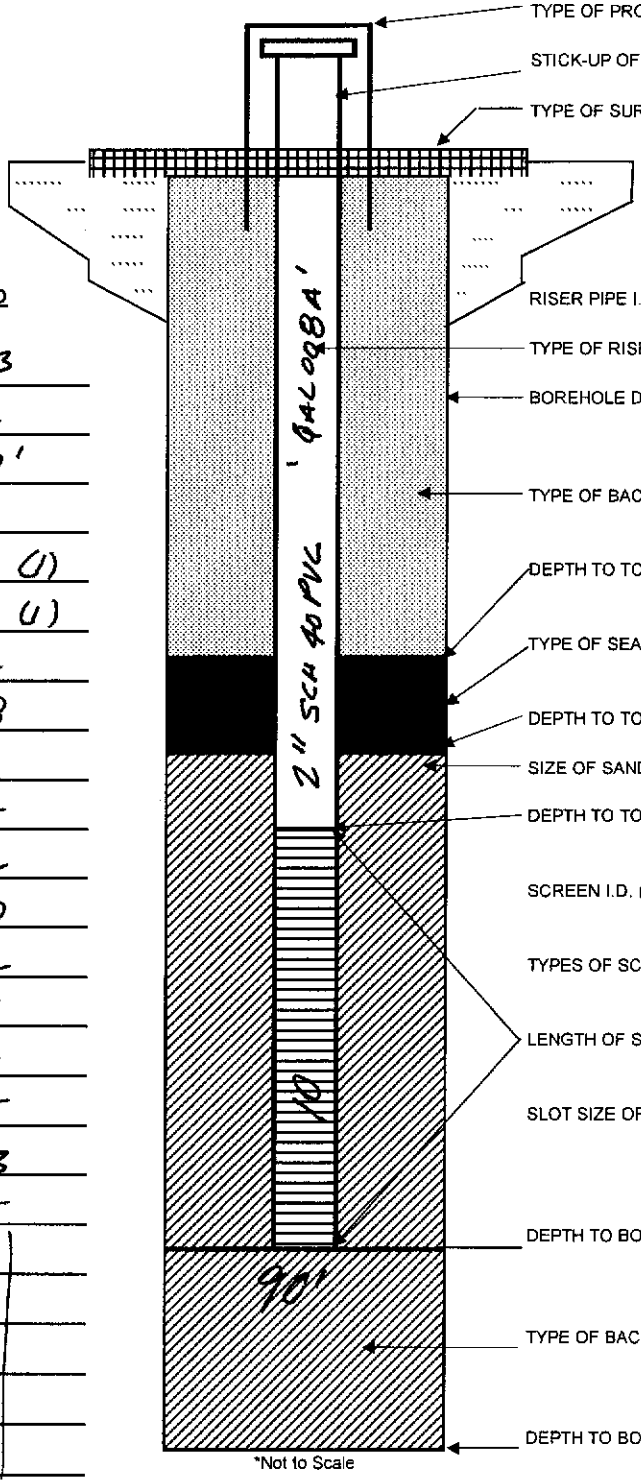


*Not to Scale

TYPE OF PROTECTIVE COVER	4" Steel Round
STICK-UP OF RISER PIPE	2.5" PVC (3')
TYPE OF SURFACE SEAL	Concrete Mix
RISER PIPE I.D. (INCHES)	2.5"
TYPE OF RISER PIPE	PVC. Sch. 80
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Cement - Bent. grout
DEPTH TO TOP OF SEAL (FEET)	168'
TYPE OF SEAL	3/8" Baroid Hole Plug
DEPTH TO TOP OF SAND PACK (FEET)	173'
SIZE OF SAND PACK	K&E #1
DEPTH TO TOP OF SCREEN (FEET)	175'
SCREEN I.D. (INCHES)	2.5"
TYPES OF SCREEN	Sch. 80 PVC Machine Slot
LENGTH OF SCREEN (FEET)	5'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	180'
TYPE OF BACKFILL BELOW SCREEN	3/8" Hole Plug
DEPTH TO BOTTOM OF HOLE (FEET)	248

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	Kennecott Exploration	DRILL TEAM	Don B., James S., Eric G.
PROJECT NAME	Eagle	DRILLING METHOD	Sonic
LOCATION	B.G Bay, MI.	DATE	9-30-04
BORING NUMBER	DAL008A	PROJECT NUMBER	2351928
		DEVELOPMENT METHOD	Air



*Not to Scale

TYPE OF PROTECTIVE COVER	4" Steel Round
STICK-UP OF RISER PIPE	2" PVC Sch. 40.
TYPE OF SURFACE SEAL	Cement
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	PVC. Sch. 40
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Cement/Bent
DEPTH TO TOP OF SEAL (FEET)	74
TYPE OF SEAL	3/8" Hole Plug
DEPTH TO TOP OF SAND PACK (FEET)	78'
SIZE OF SAND PACK	K&E #1
DEPTH TO TOP OF SCREEN (FEET)	80
SCREEN I.D. (INCHES)	2.5"
TYPES OF SCREEN	P.V.C. Machine Slot
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	90'
TYPE OF BACKFILL BELOW SCREEN	Sand
DEPTH TO BOTTOM OF HOLE (FEET)	91'

WELL MATERIALS USED

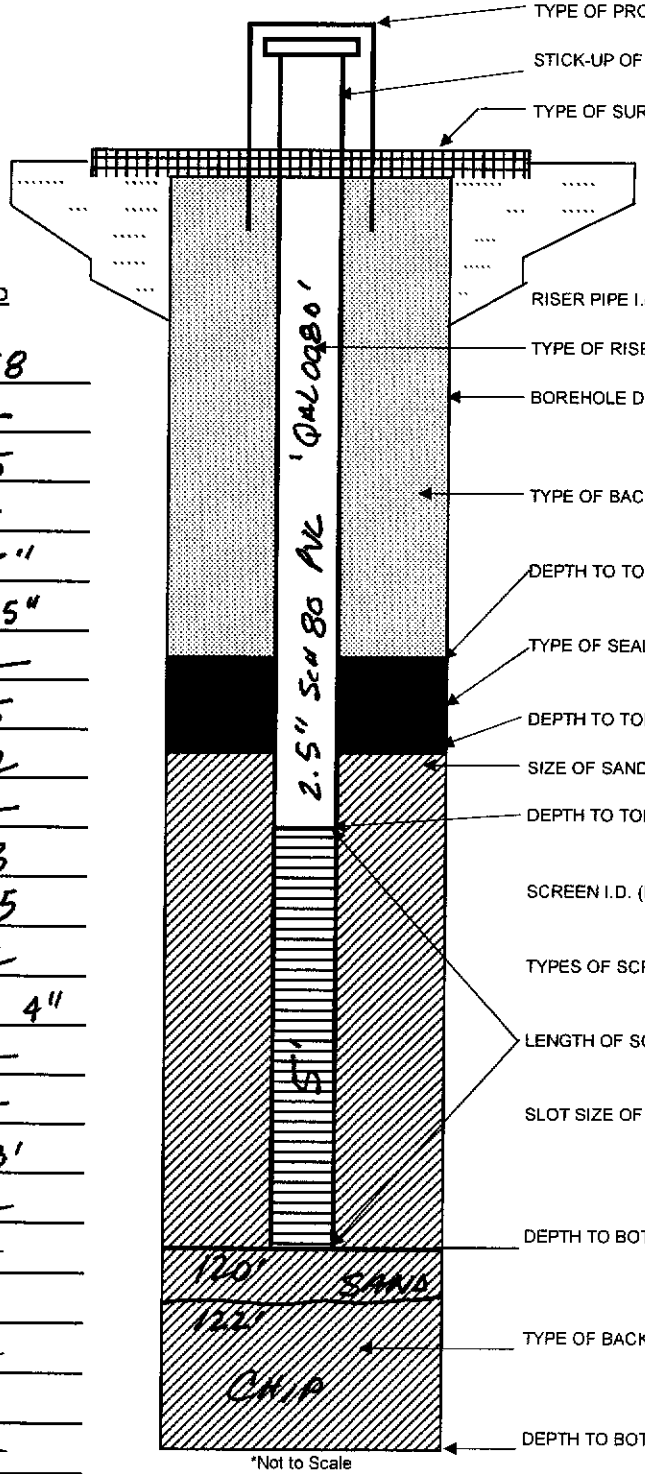
FEET ~~OF 5 FOOT~~ RISER	83
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	10'
PUSH ON CAPS	—
BOTTOM PLUGS	2" (1)
LOCKING PLUGS	2" (1)
LOCKS	—
BAGS OF SAND	8
BAGS OF HOLE PLUG	4
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	2
BAGS OF CEMENT	10
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3
ROLLS OF PLASTIC	—
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	Kennecott Exploration	DRILL TEAM	Don B, Eric G., James S.
PROJECT NAME	Eagle	DRILLING METHOD	Sonic
LOCATION	Big Bay, MI.	DATE	9-30-04
BORING NUMBER	QAL0080	PROJECT NUMBER	2354928
		DEVELOPMENT METHOD	

WELL MATERIALS USED

FEET ~~OF 5 FOOT~~ RISER	118
~~FEET OF 10 FOOT RISER~~	
FEET OF SCREEN	5
PUSH ON CAPS	—
BOTTOM PLUGS	2.5"
LOCKING PLUGS	2.5"
LOCKS	—
BAGS OF SAND	5
BAGS OF HOLE PLUG	2
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	3
BAGS OF CEMENT	15
BAGS OF CONCRETE MIX	2
STAND UP COVERS	(1) 4"
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3'
ROLLS OF PLASTIC	—
TYVEK SUITS	—
OUTER GLOVES	—
INNER GLOVES	—
GUARD POSTS	—
OTHER	—
OTHER	—

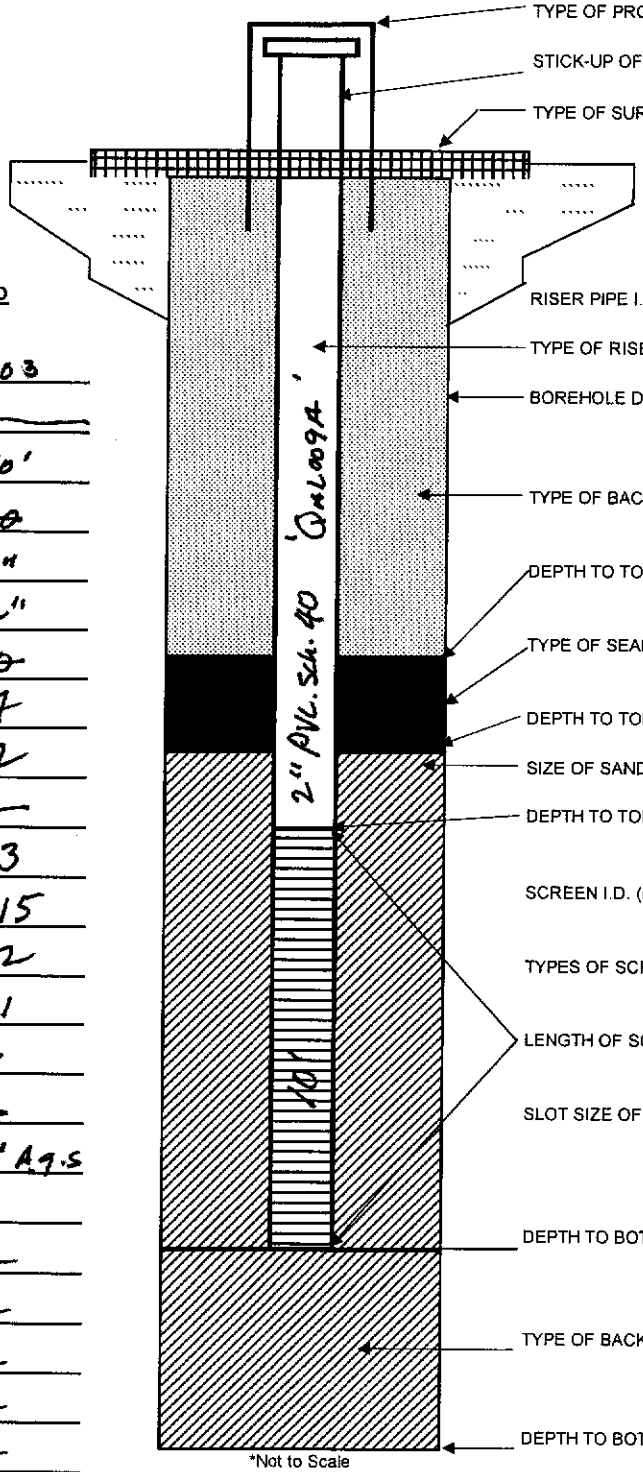


*Not to Scale

TYPE OF PROTECTIVE COVER	4" Round Steel
STICK-UP OF RISER PIPE	2.5" Sch. 80 PVC
TYPE OF SURFACE SEAL	Concrete
RISER PIPE I.D. (INCHES)	2.5"
TYPE OF RISER PIPE	PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Cement / Bent. grout
DEPTH TO TOP OF SEAL (FEET)	109'
TYPE OF SEAL	3/8" Hole Plug
DEPTH TO TOP OF SAND PACK (FEET)	113'
SIZE OF SAND PACK	K & E #1
DEPTH TO TOP OF SCREEN (FEET)	115'
SCREEN I.D. (INCHES)	2.5"
TYPES OF SCREEN	PVC Machine Slot
LENGTH OF SCREEN (FEET)	5
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	120'
TYPE OF BACKFILL BELOW SCREEN	CHIP
DEPTH TO BOTTOM OF HOLE (FEET)	138

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	Kennecott Exploration	DRILL TEAM	(James S., Don B, Jim V, Eric G)
PROJECT NAME	Eagle	DRILLING METHOD	Sonic
LOCATION	Big Bay, MI.	DATE	9-29-04
PROJECT NUMBER	2354928		
BORING NUMBER	QAL009A	DEVELOPMENT METHOD	Air 900 psi



*Not to Scale

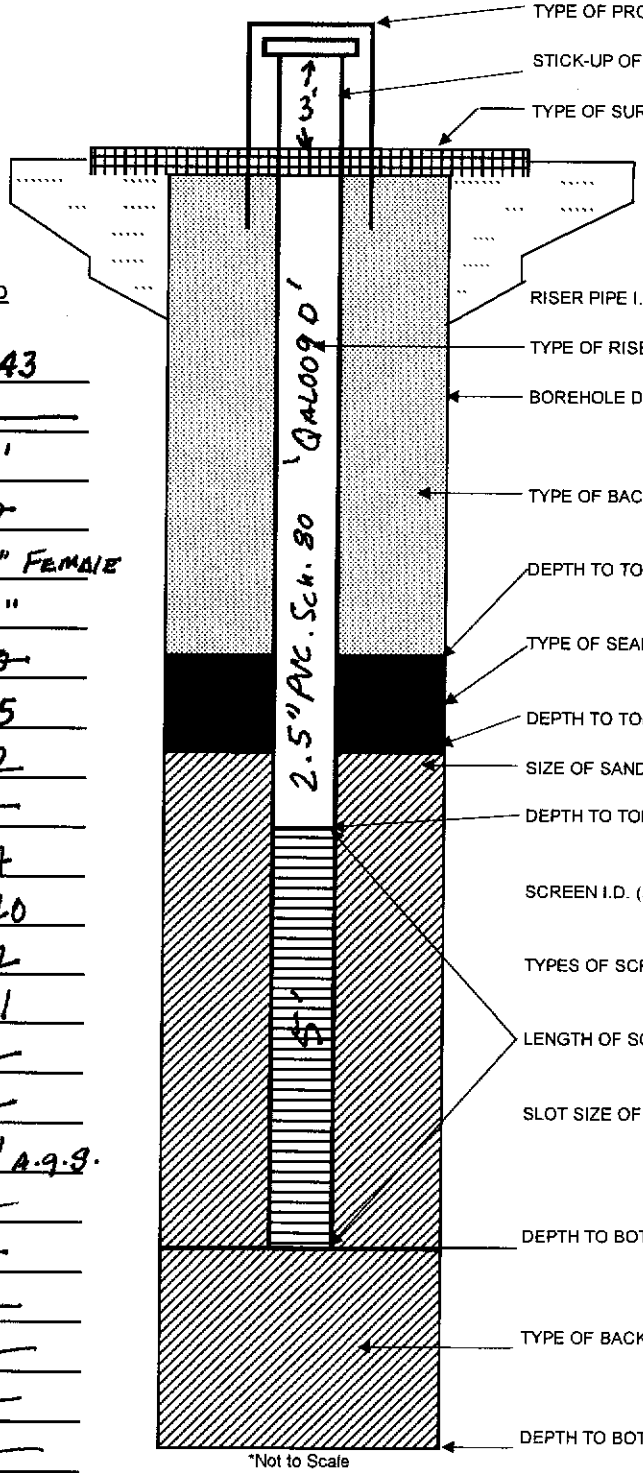
TYPE OF PROTECTIVE COVER	4" Round Steel
STICK-UP OF RISER PIPE	2" Sch. 40 PVC
TYPE OF SURFACE SEAL	Concrete
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	PVC Sch 40
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Cement/Bent. grout
DEPTH TO TOP OF SEAL (FEET)	94'
TYPE OF SEAL	3/8" Hole Plug (Baroid)
DEPTH TO TOP OF SAND PACK (FEET)	98'
SIZE OF SAND PACK	K&E #1
DEPTH TO TOP OF SCREEN (FEET)	100'
SCREEN I.D. (INCHES)	2"
TYPES OF SCREEN	PVC Machine Slot
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	110'
TYPE OF BACKFILL BELOW SCREEN	Sand
DEPTH TO BOTTOM OF HOLE (FEET)	111'

WELL MATERIALS USED

FEET OF ~~RISER~~ RISER	103
~~FEET OF 10 FOOT RISER~~	
FEET OF SCREEN	10'
PUSH ON CAPS	0
BOTTOM PLUGS	2"
LOCKING PLUGS	2"
LOCKS	0
BAGS OF SAND	7
BAGS OF HOLE PLUG	2
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	3
BAGS OF CEMENT	15
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3' Ag.S
ROLLS OF PLASTIC	—
TYVEK SUITS	—
OUTER GLOVES	—
INNER GLOVES	—
GUARD POSTS	—
OTHER	—
OTHER	—

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT EXPLORATION	DRILL TEAM	(JAMES S., DON BOND, JIM V., ERIC GEIGER)
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	BIG BAY, MI.	DATE	9-29-04
BORING NUMBER	QAL009D	PROJECT NUMBER	2354928
		DEVELOPMENT METHOD	AIR (3hrs. ~10gal/M.in.)



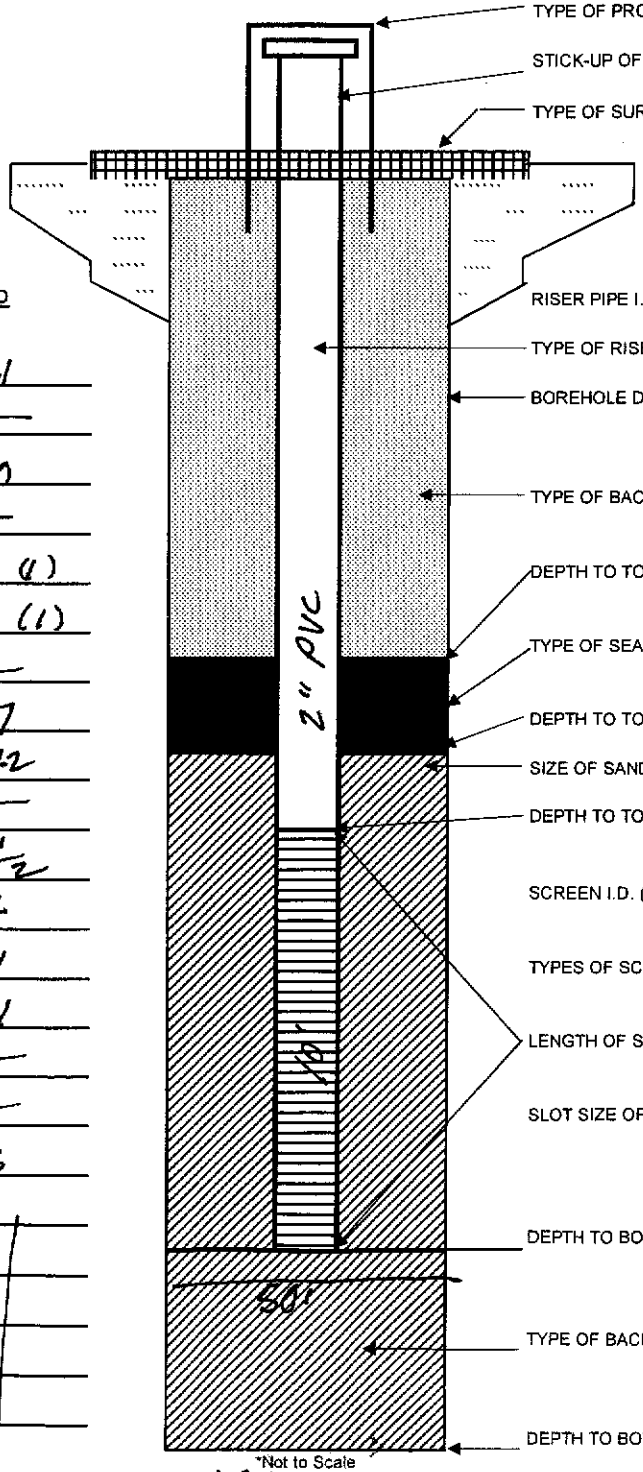
TYPE OF PROTECTIVE COVER	4" ROUND STEEL
STICK-UP OF RISER PIPE	2.5" SCH 80 PVC
TYPE OF SURFACE SEAL	CONCRETE
RISER PIPE I.D. (INCHES)	2.5"
TYPE OF RISER PIPE	2.5" SCH. 80 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Cement /Bent grout
DEPTH TO TOP OF SEAL (FEET)	134
TYPE OF SEAL	BENTONITE CHIP 3/8" Hole PLUG
DEPTH TO TOP OF SAND PACK (FEET)	138
SIZE OF SAND PACK	K#E#1
DEPTH TO TOP OF SCREEN (FEET)	140'
SCREEN I.D. (INCHES)	2.5"
TYPES OF SCREEN	[illegible] PVC SCH. 80
LENGTH OF SCREEN (FEET)	5'
SLOT SIZE OF SCREEN (INCHES)	.020"
DEPTH TO BOTTOM OF SCREEN (FEET)	145'
TYPE OF BACKFILL BELOW SCREEN	NATIVE
DEPTH TO BOTTOM OF HOLE (FEET)	146

WELL MATERIALS USED

FEET OF [illegible] RISER	143
~~FEET OF 10 FOOT RISER~~	
FEET OF SCREEN	5'
PUSH ON CAPS	0
BOTTOM PLUGS	2.5" FEMALE
LOCKING PLUGS	2.5"
LOCKS	0
BAGS OF SAND	5
BAGS OF HOLE PLUG	2
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	4
BAGS OF CEMENT	20
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3' A.G.S.
ROLLS OF PLASTIC	—
TYVEK SUITS	—
OUTER GLOVES	—
INNER GLOVES	—
GUARD POSTS	—
OTHER	—
OTHER	—

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT	DRILL TEAM	JAMES S. Dan B. Jim V.
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	BIG BAY	DATE	10-10-04
BORING NUMBER	QAL010A	PROJECT NUMBER	235428
		DEVELOPMENT METHOD	Down Hole Pump N Surge 120gal



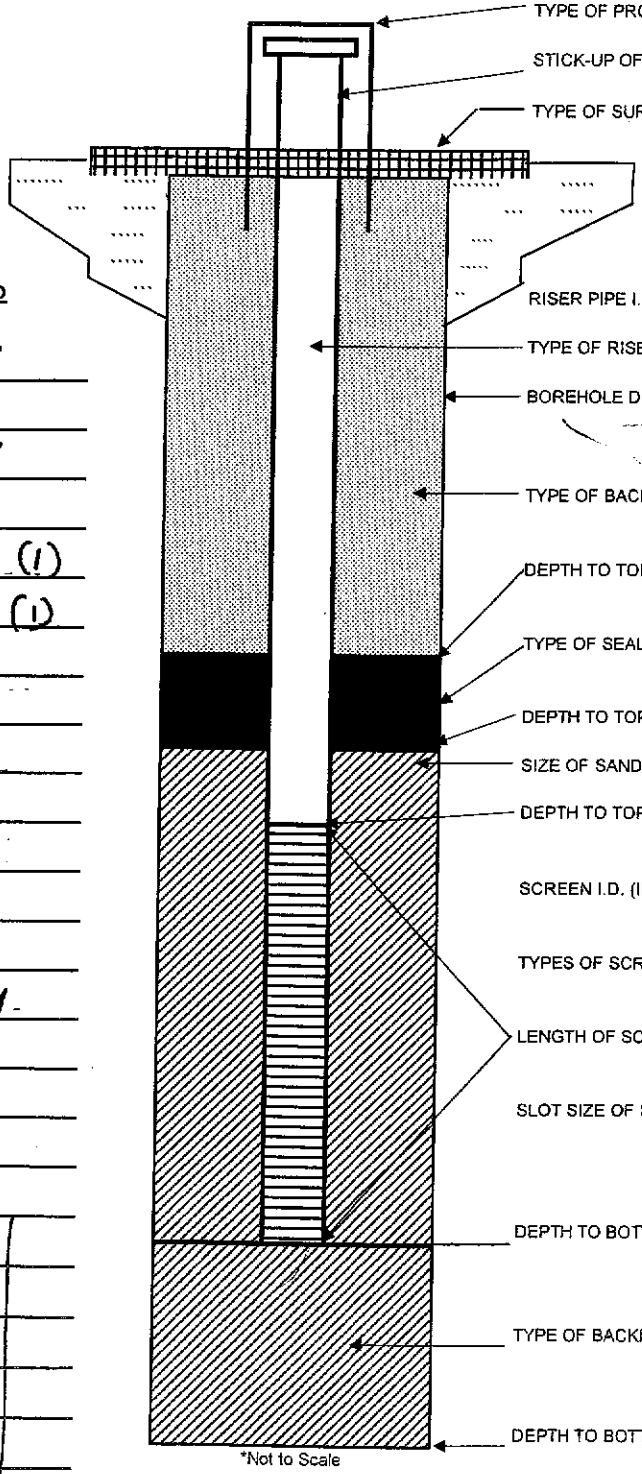
TYPE OF PROTECTIVE COVER	4" STEEL ROUND
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	CONCRETE
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Cement - Bentonite
DEPTH TO TOP OF SEAL (FEET)	2'
TYPE OF SEAL	Bentonite Chip
DEPTH TO TOP OF SAND PACK (FEET)	34'
SIZE OF SAND PACK	K & E #1
DEPTH TO TOP OF SCREEN (FEET)	38
SCREEN I.D. (INCHES)	2"
TYPES OF SCREEN	PVC Machine Slot
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	48'
TYPE OF BACKFILL BELOW SCREEN	Bentonite Chip
DEPTH TO BOTTOM OF HOLE (FEET)	198

WELL MATERIALS USED

FEET OF ~~5 FOOT~~ RISER	41
~~FEET OF 10 FOOT RISER~~	
FEET OF SCREEN	10
PUSH ON CAPS	—
BOTTOM PLUGS	2" (1)
LOCKING PLUGS	2" (1)
LOCKS	—
BAGS OF SAND	7
BAGS OF HOLE PLUG	42
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	1/2
BAGS OF CEMENT	4
BAGS OF CONCRETE MIX	1
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT	DRILL TEAM	JAMES S. DON B. JIM V.
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	B.G BAY, MI.	DATE	10-12-04
BORING NUMBER	QAL01A	PROJECT NUMBER	2354928
		DEVELOPMENT METHOD	Pump/Surge 90gal.



*Not to Scale

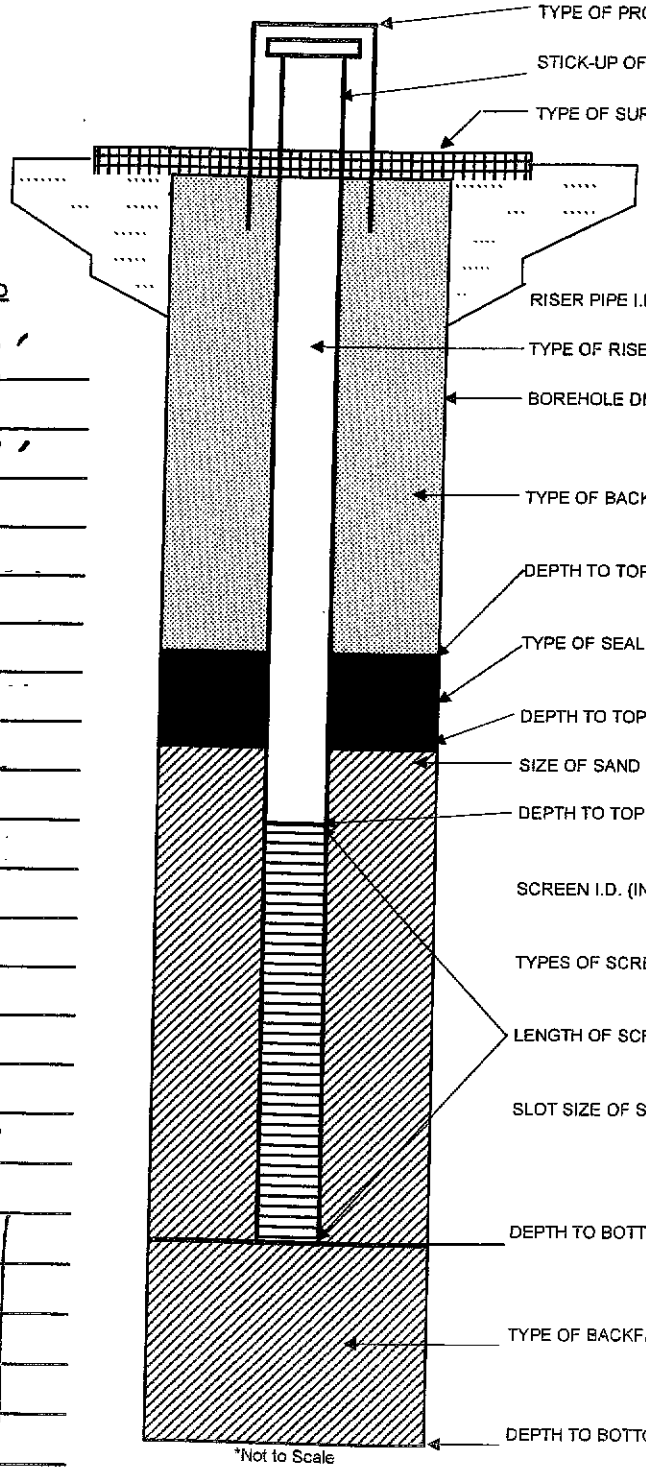
TYPE OF PROTECTIVE COVER	10" STEEL ROUND
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	CONCRETE
RISER PIPE I.D. (INCHES)	6"
TYPE OF RISER PIPE	Steel
BOREHOLE DIAMETER (INCHES)	10"
TYPE OF BACKFILL	Cement/Bentonite grout
DEPTH TO TOP OF SEAL (FEET)	27'
TYPE OF SEAL	Bentonite chip
DEPTH TO TOP OF SAND PACK (FEET)	31'
SIZE OF SAND PACK	K&E #2
DEPTH TO TOP OF SCREEN (FEET)	33'
SCREEN I.D. (INCHES)	6"
TYPES OF SCREEN	Stainless steel
LENGTH OF SCREEN (FEET)	12'
SLOT SIZE OF SCREEN (INCHES)	
DEPTH TO BOTTOM OF SCREEN (FEET)	45'
TYPE OF BACKFILL BELOW SCREEN	—
DEPTH TO BOTTOM OF HOLE (FEET)	45'

WELL MATERIALS USED

FEET OF ~~5 FOOT~~ RISER	36'
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	12'
PUSH ON CAPS	—
BOTTOM PLUGS	6" (1)
LOCKING PLUGS	6" (1)
LOCKS	—
BAGS OF SAND	5
BAGS OF HOLE PLUG	7
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	1
BAGS OF CEMENT	7
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3'
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT	DRILL TEAM	Larry H, EricG
PROJECT NAME	EAGLE	DRILLING METHOD	CABLE TOOL
LOCATION	B.G BAY, MI.	DATE	10-11-04
BORING NUMBER	QALOWD	PROJECT NUMBER	2354928
		DEVELOPMENT METHOD	Pump/Surge 90gal.



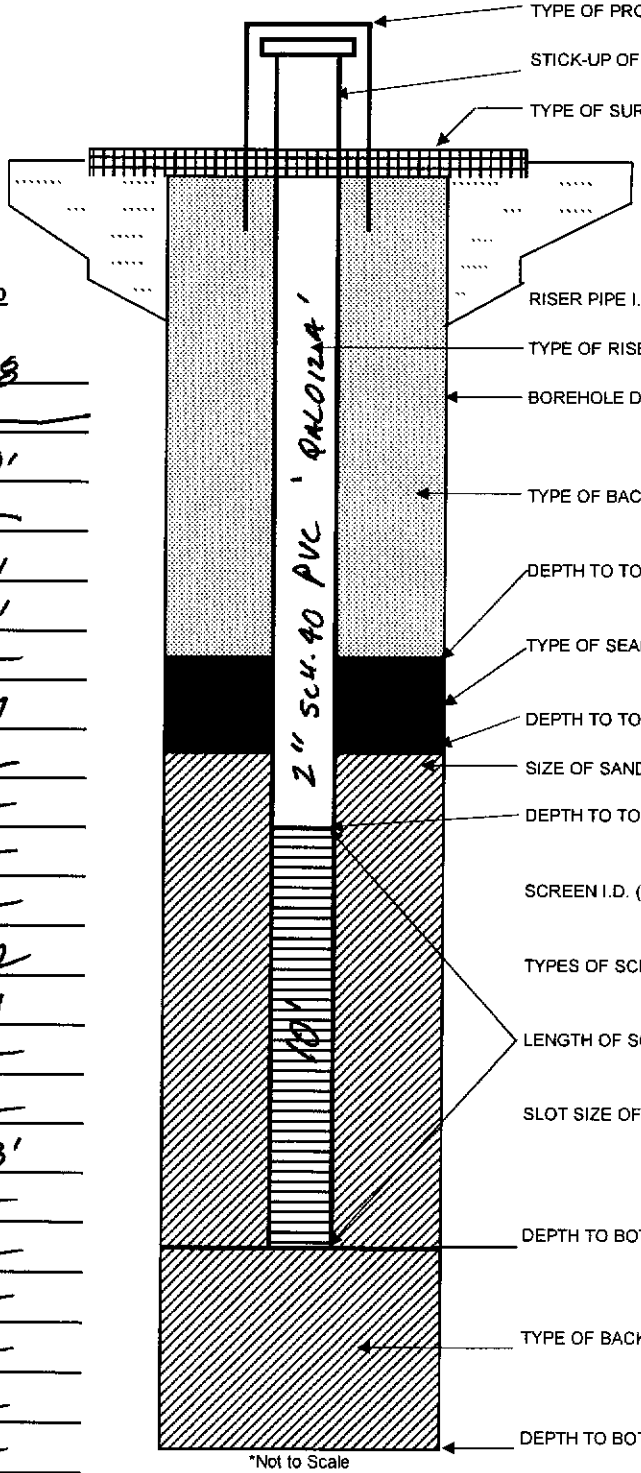
TYPE OF PROTECTIVE COVER	10" STEEL ROUND
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	CONCRETE
RISER PIPE I.D. (INCHES)	6"
TYPE OF RISER PIPE	Steel
BOREHOLE DIAMETER (INCHES)	14" to 50' 10" below
TYPE OF BACKFILL	cement/Bentonite grout
DEPTH TO TOP OF SEAL (FEET)	115'
TYPE OF SEAL	Bentonite
DEPTH TO TOP OF SAND PACK (FEET)	119'
SIZE OF SAND PACK	K+E #2
DEPTH TO TOP OF SCREEN (FEET)	121'
SCREEN I.D. (INCHES)	6"
TYPES OF SCREEN	Steel SS
LENGTH OF SCREEN (FEET)	14'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	135'
TYPE OF BACKFILL BELOW SCREEN	—
DEPTH TO BOTTOM OF HOLE (FEET)	135'

WELL MATERIALS USED

FEET OF ~~5 FOOT~~ RISER	124'
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	14'
PUSH ON CAPS	—
BOTTOM PLUGS	1
LOCKING PLUGS	1
LOCKS	—
BAGS OF SAND	20
BAGS OF HOLE PLUG	30
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	3
BAGS OF CEMENT	10
BAGS OF CONCRETE MIX	—
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3'
ROLLS OF PLASTIC	—
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT EXPLORATION	DRILL TEAM	JAMES S. DON B. ERIC G. JIM V.
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	BIG BAY, MI.	DATE	9-25-04
BORING NUMBER	QAL012A	PROJECT NUMBER	2354928
		DEVELOPMENT METHOD	PUMP/SURGE ~3hr 5 GAL/MIN



*Not to Scale

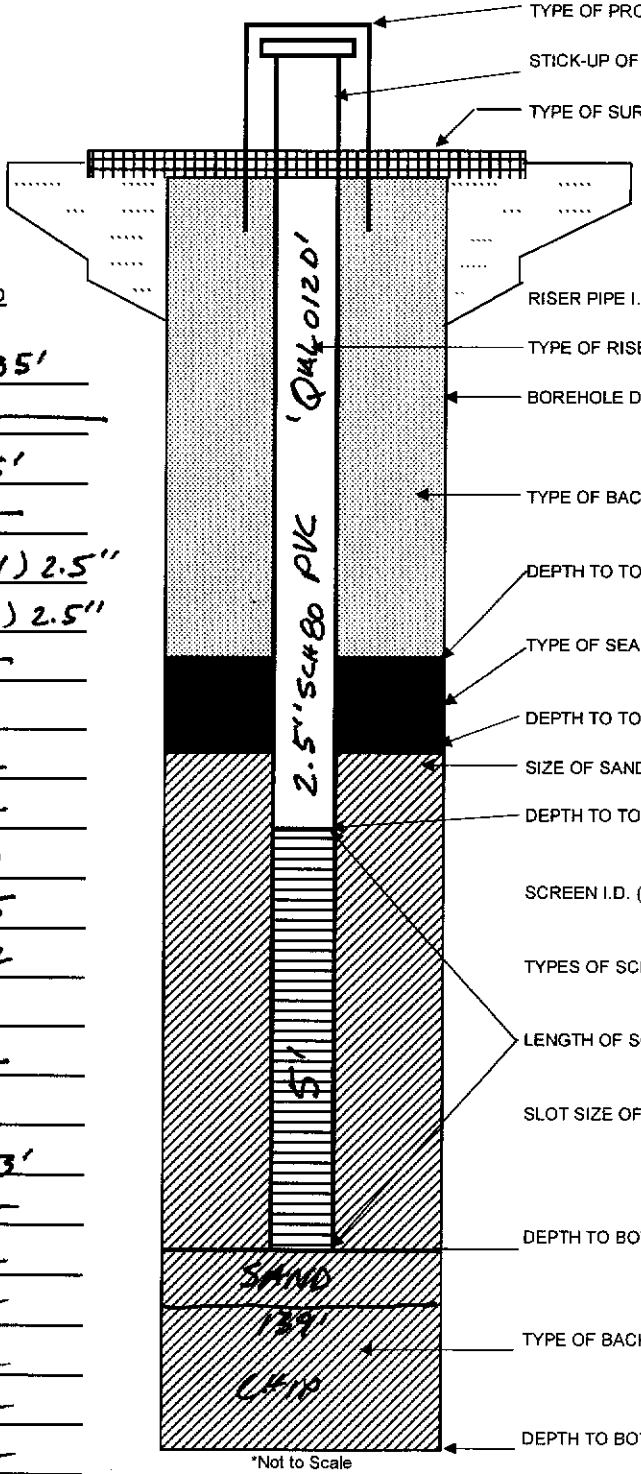
TYPE OF PROTECTIVE COVER	4" ROUND STEEL
STICK-UP OF RISER PIPE	3' X 2" SCH. 40 PVC
TYPE OF SURFACE SEAL	CEMENT
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	PVC SCH 40
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	BENTONITE 3/8"
DEPTH TO TOP OF SEAL (FEET)	5'
TYPE OF SEAL	3/8" BENTONITE
DEPTH TO TOP OF SAND PACK (FEET)	33'
SIZE OF SAND PACK	K & E #1
DEPTH TO TOP OF SCREEN (FEET)	35'
SCREEN I.D. (INCHES)	2"
TYPES OF SCREEN	PVC SCH 40. MACHINE SLOT
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	45'
TYPE OF BACKFILL BELOW SCREEN	SAND
DEPTH TO BOTTOM OF HOLE (FEET)	46'

WELL MATERIALS USED

FEET ~~OF 5 FOOT~~ RISER	38
~~FEET OF 10 FOOT RISER~~	—
FEET OF SCREEN	10'
PUSH ON CAPS	—
BOTTOM PLUGS	1
LOCKING PLUGS	1
LOCKS	—
BAGS OF SAND	7
BAGS OF HOLE PLUG	12
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	—
BAGS OF CEMENT	—
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3'
ROLLS OF PLASTIC	—
TYVEK SUITS	—
OUTER GLOVES	—
INNER GLOVES	—
GUARD POSTS	—
OTHER	—
OTHER	—

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	Kennecott Exploration	DRILL TEAM	James, Don B, Jim V, Eric G.
PROJECT NAME	Eagle	DRILLING METHOD	Sonic
LOCATION	B.G Bay, MI.	DATE	9-25-04
PROJECT NUMBER	2354928		
BORING NUMBER	QAL 0120	DEVELOPMENT METHOD	Air ~ 3hr. 15gal/min



*Not to Scale

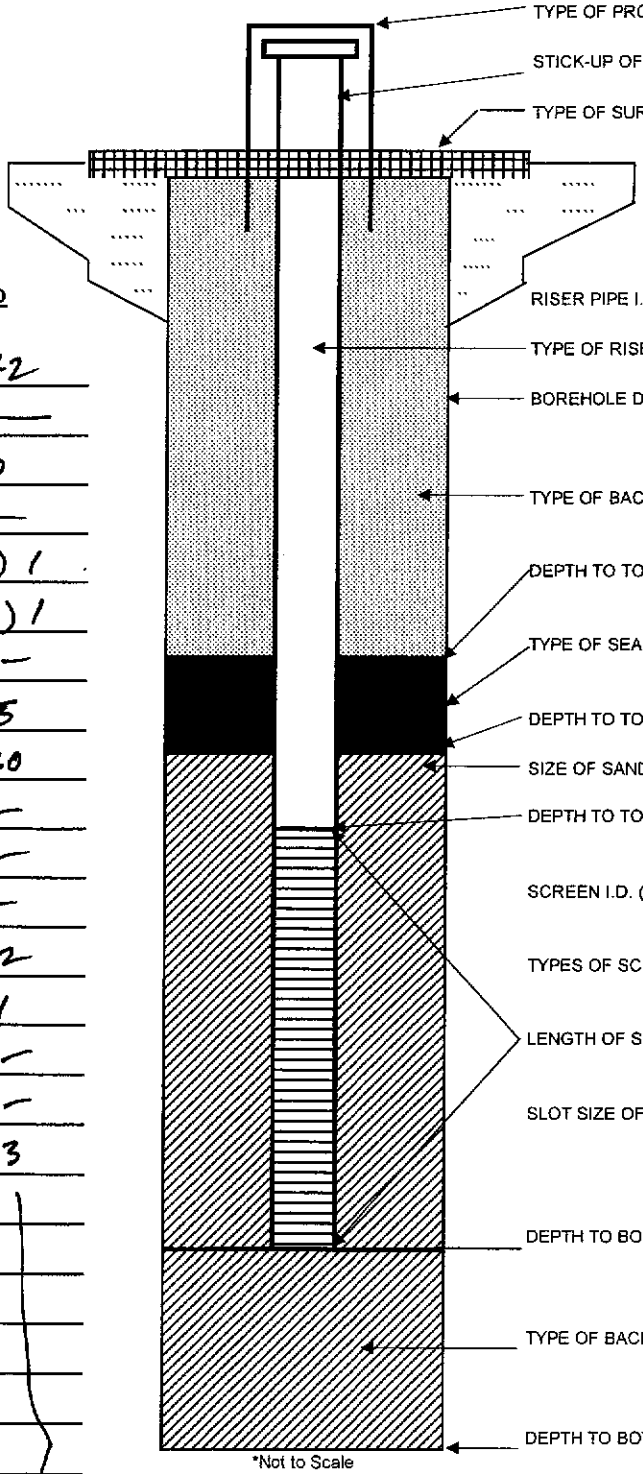
TYPE OF PROTECTIVE COVER	4" Round Steel
STICK-UP OF RISER PIPE	3' x 2.5" Sch. 80 PVC.
TYPE OF SURFACE SEAL	Cement
RISER PIPE I.D. (INCHES)	2.5"
TYPE OF RISER PIPE	PVC. Sch. 80
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	Cement/Bent.
DEPTH TO TOP OF SEAL (FEET)	124'
TYPE OF SEAL	3/8" Hole Plug
DEPTH TO TOP OF SAND PACK (FEET)	130'
SIZE OF SAND PACK	K&E #1
DEPTH TO TOP OF SCREEN (FEET)	132'
SCREEN I.D. (INCHES)	2.5"
TYPES OF SCREEN	PVC. Sch. 80 Machine Slot
LENGTH OF SCREEN (FEET)	5'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	137
TYPE OF BACKFILL BELOW SCREEN	Bentonite Chip. 3/8" Hole Plug
DEPTH TO BOTTOM OF HOLE (FEET)	151

WELL MATERIALS USED

FEET OF ~~5 FOOT~~ RISER	135'
~~FEET OF 10 FOOT RISER~~	
FEET OF SCREEN	5'
PUSH ON CAPS	—
BOTTOM PLUGS	(1) 2.5"
LOCKING PLUGS	(1) 2.5"
LOCKS	—
BAGS OF SAND	5
BAGS OF HOLE PLUG	2
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	3
BAGS OF CEMENT	15
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3'
ROLLS OF PLASTIC	—
TYVEK SUITS	—
OUTER GLOVES	—
INNER GLOVES	—
GUARD POSTS	—
OTHER	—
OTHER	—

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT	DRILL TEAM	JIM DON JAMES
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	BIG BAY, MI.	DATE	9-24-04
PROJECT NUMBER	2354928		
BORING NUMBER	QAL013A	DEVELOPMENT METHOD	PUMP/SURGE 120



*Not to Scale

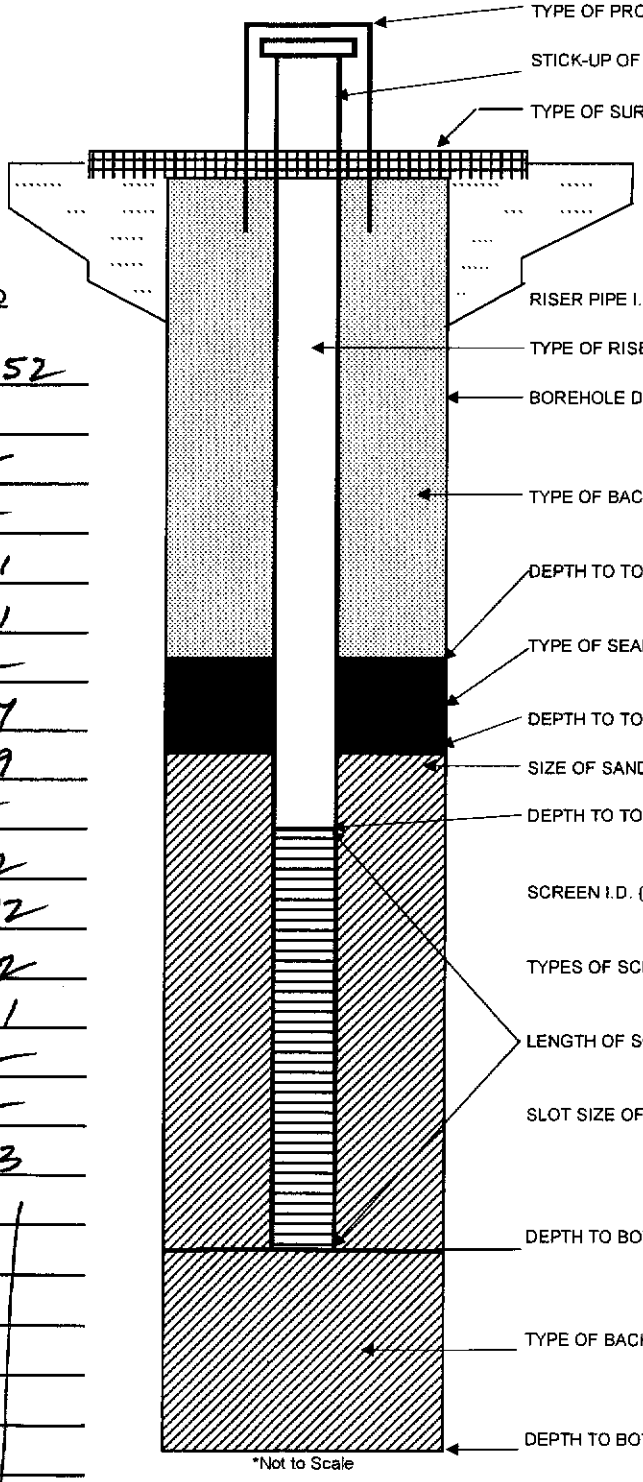
TYPE OF PROTECTIVE COVER	4" STEEL
STICK-UP OF RISER PIPE	2" SCH 40 3'
TYPE OF SURFACE SEAL	CEMENT
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	2" SCH 40 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	CHIP
DEPTH TO TOP OF SEAL (FEET)	3'
TYPE OF SEAL	CHIP
DEPTH TO TOP OF SAND PACK (FEET)	37
SIZE OF SAND PACK	K&E #1
DEPTH TO TOP OF SCREEN (FEET)	39'
SCREEN I.D. (INCHES)	2"
TYPES OF SCREEN	SCH 40 MACHINE SLOT
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	49
TYPE OF BACKFILL BELOW SCREEN	—
DEPTH TO BOTTOM OF HOLE (FEET)	49

WELL MATERIALS USED

FEET OF ~~5 FOOT~~ RISER	42
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	10
PUSH ON CAPS	—
BOTTOM PLUGS	(2") 1
LOCKING PLUGS	(2") 1
LOCKS	—
BAGS OF SAND	5
BAGS OF HOLE PLUG	20
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	—
BAGS OF CEMENT	—
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT	DRILL TEAM	JAMES - DON - JIM
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	B.G BAY, MI.	DATE	9-24-04
PROJECT NUMBER	2354928		
BORING NUMBER	QAL 013D	DEVELOPMENT METHOD	AIR 900 gal.



4" STEEL
2'5" PVC
CEMENT
2.5"
SCH 80 PVC
6"
Cement / Bent.
112
Bent.
116'
K&E #1
119'
2.5"
SCH 80 MACHINE SLOT
5'
.020
124'
CHIP
154'

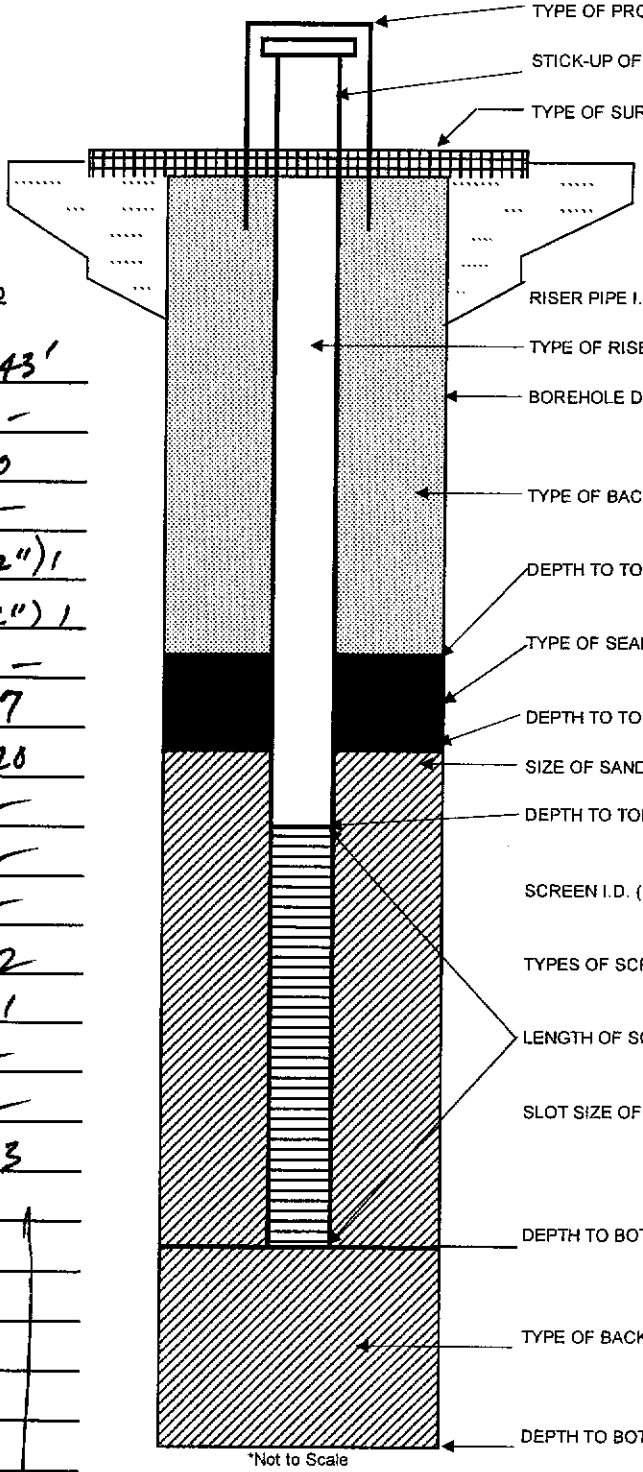
*Not to Scale

WELL MATERIALS USED

FEET OF ~~5 FOOT~~ RISER	152
~~FEET OF 10 FOOT RISER~~	
FEET OF SCREEN	5
PUSH ON CAPS	—
BOTTOM PLUGS	1
LOCKING PLUGS	1
LOCKS	—
BAGS OF SAND	4
BAGS OF HOLE PLUG	9
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	2
BAGS OF CEMENT	12
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT	DRILL TEAM	JAMES DON JIM
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	B.G BAY, MI.	DATE	9-23
PROJECT NUMBER	2354728		
BORING NUMBER	Q4LO14A	DEVELOPMENT METHOD	PUMP/SURGE 120 gal.



*Not to Scale

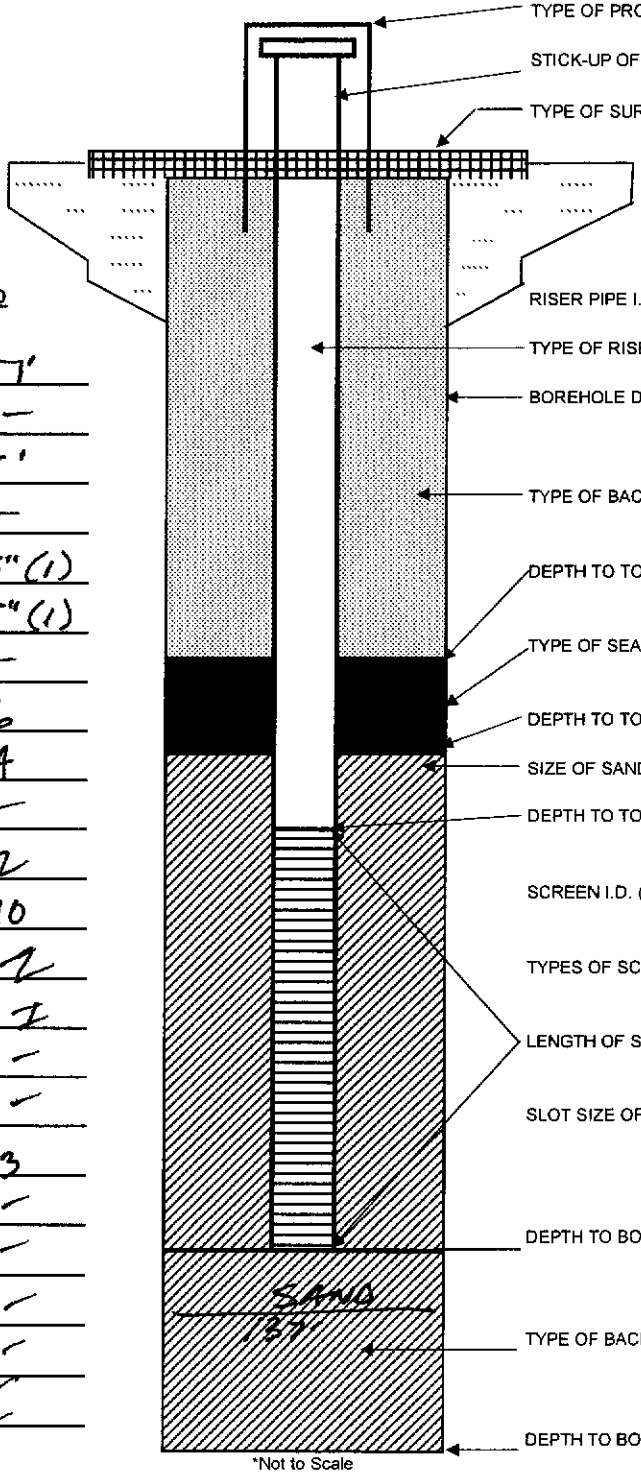
TYPE OF PROTECTIVE COVER	4" STEEL
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	CONCRETE
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	2" SCH. 40
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	BENTONITE
DEPTH TO TOP OF SEAL (FEET)	BENTONITE 3'
TYPE OF SEAL	BENTONITE
DEPTH TO TOP OF SAND PACK (FEET)	38'
SIZE OF SAND PACK	KEE#1
DEPTH TO TOP OF SCREEN (FEET)	40'
SCREEN I.D. (INCHES)	2"
TYPES OF SCREEN	SCH 40 MACHINE SLOT
LENGTH OF SCREEN (FEET)	10'
SLOT SIZE OF SCREEN (INCHES)	.020
DEPTH TO BOTTOM OF SCREEN (FEET)	50'
TYPE OF BACKFILL BELOW SCREEN	—
DEPTH TO BOTTOM OF HOLE (FEET)	50'

WELL MATERIALS USED

FEET OF ~~5-FOOT~~ RISER	43'
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	10
PUSH ON CAPS	—
BOTTOM PLUGS	(2")1
LOCKING PLUGS	(2") 1
LOCKS	—
BAGS OF SAND	7
BAGS OF HOLE PLUG	20
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	—
BAGS OF CEMENT	—
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3
ROLLS OF PLASTIC	
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT EXPLORATION	DRILL TEAM	JAMES S. DON B. JIM V.
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	B.G BAY MI.	DATE	9-23-04
PROJECT NUMBER	2354928		
BORING NUMBER	QAL0140	DEVELOPMENT METHOD	AIR 900 gal.



*Not to Scale

TYPE OF PROTECTIVE COVER: 4" STEEL ROUND
STICK-UP OF RISER PIPE: 3'
TYPE OF SURFACE SEAL: CONCRETE
RISER PIPE I.D. (INCHES): 2.5"
TYPE OF RISER PIPE: 2.5" SCH. 80 PVC
BOREHOLE DIAMETER (INCHES): 6"
TYPE OF BACKFILL: Cement Bent. grout
DEPTH TO TOP OF SEAL (FEET): 128'
TYPE OF SEAL: 3/8" Hole PLug
DEPTH TO TOP OF SAND PACK (FEET): 132
SIZE OF SAND PACK: K&E #1
DEPTH TO TOP OF SCREEN (FEET): 134
SCREEN I.D. (INCHES): 2.5"
TYPES OF SCREEN: SCH 80 PVC MACHINE SLOT
LENGTH OF SCREEN (FEET): 5'
SLOT SIZE OF SCREEN (INCHES): .020
DEPTH TO BOTTOM OF SCREEN (FEET): 139
TYPE OF BACKFILL BELOW SCREEN: 3/8" Hole PLug
DEPTH TO BOTTOM OF HOLE (FEET): 157

WELL MATERIALS USED

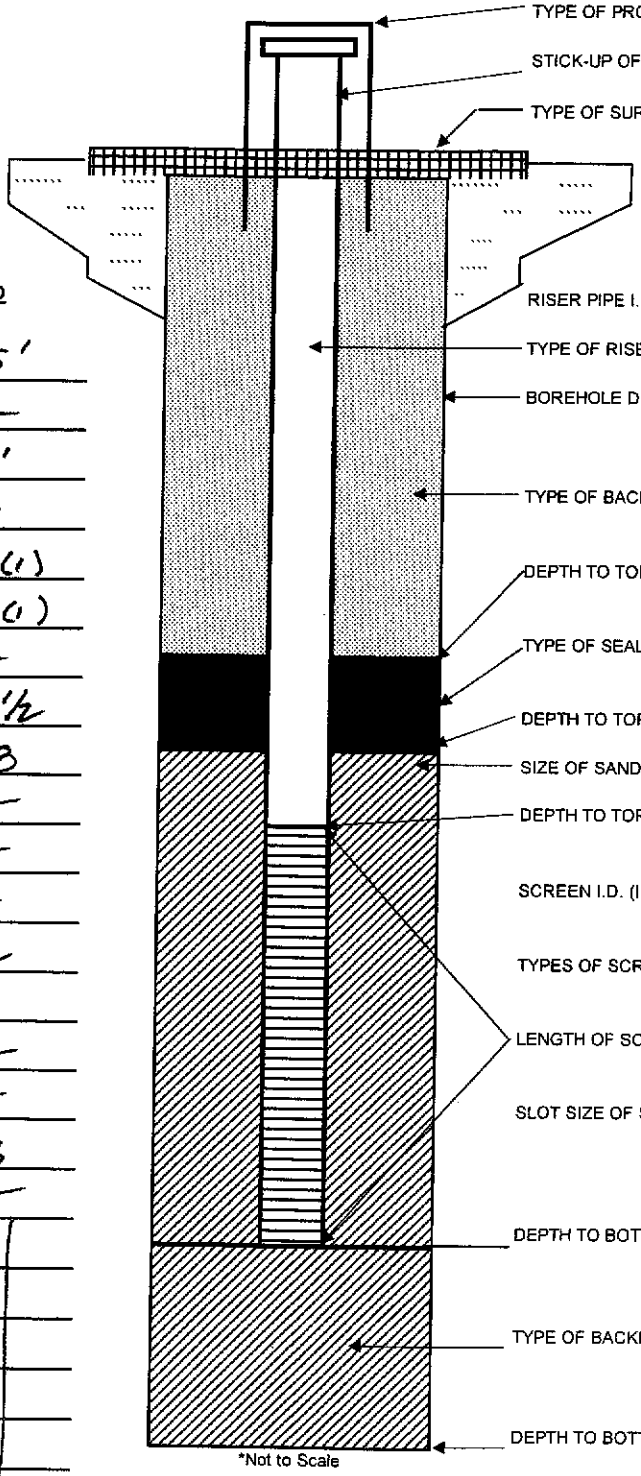
FEET ~~OF 5 FOOT~~ RISER	137'
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	5'
PUSH ON CAPS	—
BOTTOM PLUGS	2.5" (1)
LOCKING PLUGS	2.5" (1)
LOCKS	—
BAGS OF SAND	6
BAGS OF HOLE PLUG	4
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	2
BAGS OF CEMENT	10
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3
ROLLS OF PLASTIC	—
TYVEK SUITS	—
OUTER GLOVES	—
INNER GLOVES	—
GUARD POSTS	—
OTHER	—
OTHER	—

PROSONIC® CORPORATION
MONITORING WELL LOG

CLIENT NAME	KENNECOTT	DRILL TEAM	JAMES S. DON B. JIM V.
PROJECT NAME	EAGLE	DRILLING METHOD	SONIC
LOCATION	B.G BAY, MI.	DATE	9-22-04
BORING NUMBER	QAC 023B	PROJECT NUMBER	2354928
		DEVELOPMENT METHOD	PUMP/SURGE 90gal.

WELL MATERIALS USED

FEET OF ~~5 FOOT~~ RISER	35'
FEET OF 10 FOOT RISER	—
FEET OF SCREEN	5'
PUSH ON CAPS	—
BOTTOM PLUGS	2" (1)
LOCKING PLUGS	2" (1)
LOCKS	—
BAGS OF SAND	4½
BAGS OF HOLE PLUG	8
BUCKETS OF PELLETS	—
BAGS OF BENTONITE GEL	—
BAGS OF CEMENT	—
BAGS OF CONCRETE MIX	2
STAND UP COVERS	1
MANHOLE COVERS	—
55 GALLON DRUMS	—
FEET OF SURFACE CASING	3
ROLLS OF PLASTIC	—
TYVEK SUITS	
OUTER GLOVES	
INNER GLOVES	
GUARD POSTS	
OTHER	
OTHER	



TYPE OF PROTECTIVE COVER	4" STEEL ROUND
STICK-UP OF RISER PIPE	3'
TYPE OF SURFACE SEAL	CONCRETE
RISER PIPE I.D. (INCHES)	2"
TYPE OF RISER PIPE	SCH - 40 PVC
BOREHOLE DIAMETER (INCHES)	6"
TYPE OF BACKFILL	CONCRETE
DEPTH TO TOP OF SEAL (FEET)	4'
TYPE OF SEAL	BENTONITE CHIP
DEPTH TO TOP OF SAND PACK (FEET)	25'
SIZE OF SAND PACK	K&E #1
DEPTH TO TOP OF SCREEN (FEET)	27'
SCREEN I.D. (INCHES)	2"
TYPES OF SCREEN	2" PVC SCH. 40
LENGTH OF SCREEN (FEET)	5'
SLOT SIZE OF SCREEN (INCHES)	.010
DEPTH TO BOTTOM OF SCREEN (FEET)	32'
TYPE OF BACKFILL BELOW SCREEN	3/8" HolePlug
DEPTH TO BOTTOM OF HOLE (FEET)	37'

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL001**

Project: **Eagle**

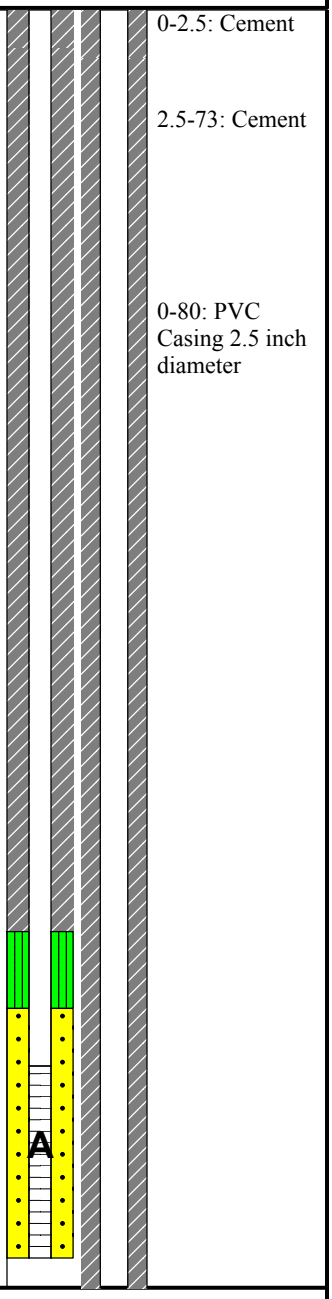
1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 3/24/2004
Completed: 3/24/2004

Surface Elevation (ft MSL): 1460
Total Depth (ft): 107
Easting (UTM): 431968.5
Northing (UTM): 5178274.6

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0					dry-moist	Topsoil: Organic silt with sand, OL, moss and small roots	0-2: Cement 6 inch diameter borehole
						Unsaturated Outwash: Sand, SP, red to reddish-brown, fine-medium grained, poorly graded, mostly quartz, trace coarse sand and granitoid cobbles (up to 2-inch diameter, subrounded), dark colored seams of fine sand, less than 0.5 inches thick	2-48: Cement 0-55: PVC Casing 2 inch diameter
50						Saturated Outwash: Sand, SP, brown, fine-medium grained and fining downward to fine sand	48-52: Bentonite 52-65: Sand
60			EAG-1001076	grain size bag		Transitional Deposit: Poor core recovery from 58 - 65, logged from loose return in core barrel, mostly fine sand, SP and silt, ML	55-65: PVC Screen 2 inch diameter
						Lacustrine Deposit: Clay, CL,	



0-2.5: Cement
2.5-73: Cement
0-80: PVC Casing 2.5 inch diameter

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL001**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

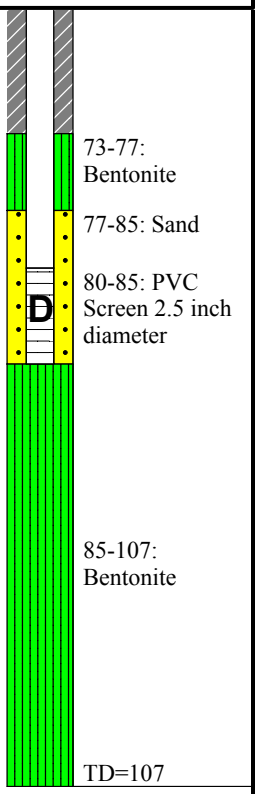
Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 3/24/2004
Completed: 3/24/2004

Surface Elevation (ft MSL): 1460
Total Depth (ft): 107
Easting (UTM): 431968.5
Northing (UTM): 5178274.6

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description
70			EAG-1001077	grain size bag	saturated	reddish-brown to gray, plastic, no structure or lamination, massive
						Saturated Outwash: Sand, SP, brown, fine-medium grained, fining downward from 80 to 90 feet
80			EAG-1001078	grain size bag		
90						Glacial Till: Clayey gravel, GC, gray-brown, with sand and subangular cobbles
100						Bedrock: Gray-green: Siltstone

Well Construction
(Sonic Rig Installation)



North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL002**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 3/18/2004
Completed: 3/21/2004

Surface Elevation (ft MSL): 1477
Total Depth (ft): 160
Easting (UTM): 430171.5
Northing (UTM): 5178907.6

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0					dry-moist	Topsoil: Organic silt with sand, OL, moss and small roots	0-2: Cement 6 inch diameter borehole 2-43: Cement 0-50: PVC Casing 2 inch diameter 43-47: Bentonite 47-60: Sand 50-60: PVC Screen 2 inch diameter 0-2.5: Cement 2.5-132: Cement 0-135: PVC Casing 2.5 inch diameter
10						Unsaturated Outwash: Sand, SP, light brown to light reddish-brown, very well sorted, fine-medium grained,fining downward, few coarse sand and gravel and cobble particles, mostly rounded quartz, some angular mafic particles	
20							
30						Lost recovery 28 to 38 feet	
40						Unsaturated Outwash: Sand, SP, light brown, fine grained	
50						Saturated Outwash: Sand, SP, brown, fine grained, fining down to silty sand, SM	
60			EAG-1001071	Shelby tube			

North Jackson Company

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Boring/Well Construction Report

Bore Hole: **QAL002**

Project: **Eagle**

Owner: Kennecott Minerals Co.

Contractor: Prosonic

Geologist: DWW, North Jackson Co.

Sampling method: Continuous 4 in. sonic core

Started: 3/18/2004

Completed: 3/21/2004

Surface Elevation (ft MSL): 1477

Total Depth (ft): 160

Easting (UTM): 430171.5

Northing (UTM): 5178907.6

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70					wet-saturated		
80							
90							
100						Transitional Deposit: Sandy silt, SM, very soft, low plasticity, soft	
110						Lacustrine Deposit: Clay, CL, reddish-brown to gray, high plasticity, no structure or lamination, massive	
120			EAG-1001072	Shelby tube			
130						Lost recovery 124 to 130 feet	
						Saturated Outwash: Silty fine sand, SM, to sandy silt, ML,	

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL002**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 3/18/2004
Completed: 3/21/2004

Surface Elevation (ft MSL): 1477
Total Depth (ft): 160
Easting (UTM): 430171.5
Northing (UTM): 5178907.6

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140			EAG-1001079	grain size bag	moist	coarsening downward to fine to medium sand with trace gravel Glacial Till: Clayey sand, SP-SC, with angular rock fragments or cobbles	132-136: Bentonite 135-140: PVC Screen 2.5 inch diameter 136-140: Sand
150						Bedrock, green mafic minerals with quartz, fine-medium grained crytalline, competent, hard	140-160: Bentonite
160							TD=160

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL003**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

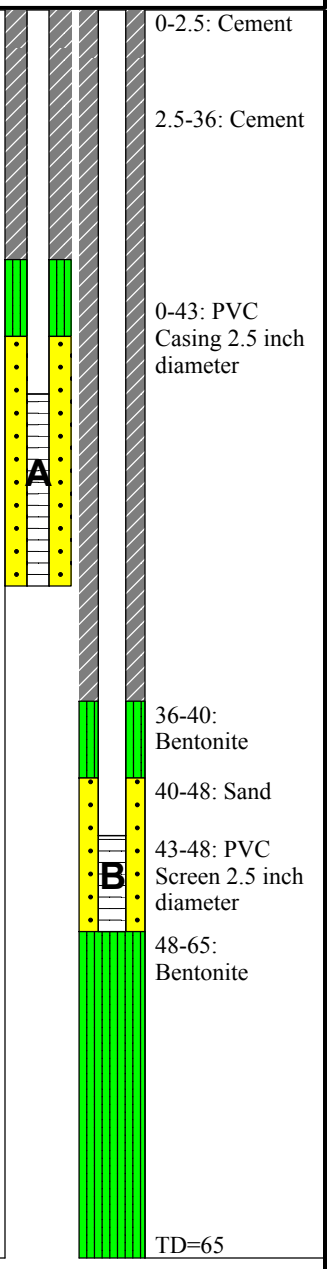
Started: 3/22/2004
Completed: 3/22/2004

Surface Elevation (ft MSL): 1434
Total Depth (ft): 65
Easting (UTM): 430940.4
Northing (UTM): 5177878.9

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description
0					moist-wet	Unsaturated Outwash: Sand, SP-SM, light brown, fine-medium grained, with silt
10						Transitional Deposit: Fine silty sand, SM, medium brown, to 16 feet, fining downward
20						
30			EAG-1001073	Shelby tube		Sandy silt, ML, at 28 feet, fining downward to clayey silt
40					wet-saturated	Silty sand, SM, medium brown, trace coarse sand and gravel
50						Glacial Till: Clayey gravel, GC, gray-brown, with sand, angular to subangular gravel to cobble size clasts, poorly sorted
60						Bedrock: Fine grained metasedimentary

Well Construction

(Sonic Rig Installation)



North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL004**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 3/30/2004
Completed: 3/30/2004

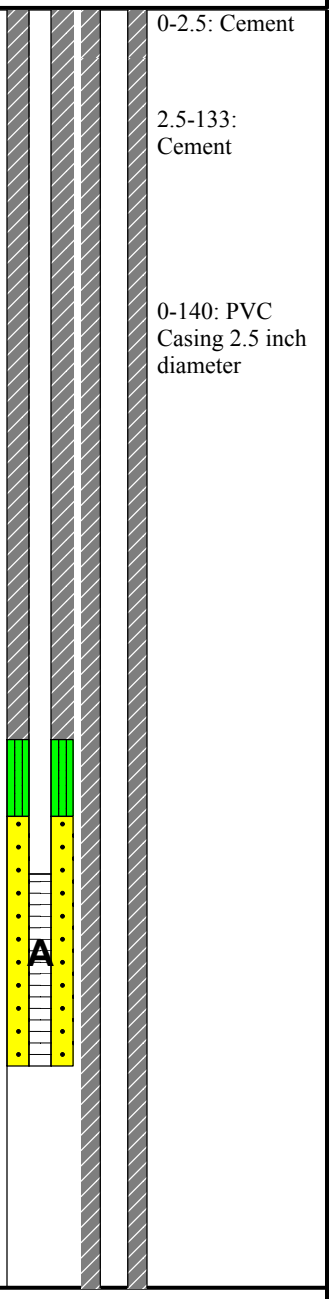
Surface Elevation (ft MSL): 1448
Total Depth (ft): 158
Easting (UTM): 431726.9
Northing (UTM): 5176651.2

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description
0					dry	Topsoil: Organic silt with sand, OL, moss and small roots
						Unsaturated Outwash: Sand, SP, red to reddish-brown,medium to fine grained, very well sorted, dry, mostly rounded quartz grains with few angular mafics
10						
			EAG-1001080	grain size bag		
20					moist-wet	Sand, SP, coarsening to medium sand with gravel and few cobbles, dark brown, poor core recovery
30						
40						Saturated Outwash: Sand, SP, brown, mostly fine grained
50						Transitional Deposit: Fine silty sand, SM, with silt layers up to 0.5 feet thick
			EAG-1001081	grain size bag		
60						

Well Construction
(Sonic Rig Installation)

0-2: Cement 6 inch diameter borehole
2-38: Cement
0-45: PVC Casing 2 inch diameter
38-42: Bentonite
42-55: Sand
45-55: PVC Screen 2 inch diameter

0-2.5: Cement
2.5-133: Cement
0-140: PVC Casing 2.5 inch diameter



North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL004**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 3/30/2004
Completed: 3/30/2004

Surface Elevation (ft MSL): 1448
Total Depth (ft): 158
Easting (UTM): 431726.9
Northing (UTM): 5176651.2

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70							
80						Lacustrine Deposit: Clay, CL, reddish-brown to gray, plastic, saturated, no structure or lamination, massive	
90					saturated		
100			EAG-1001074	Shelby tube			
110							
120							
130							

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL004**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 3/30/2004
Completed: 3/30/2004

Surface Elevation (ft MSL): 1448
Total Depth (ft): 158
Easting (UTM): 431726.9
Northing (UTM): 5176651.2

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140			EAG-1001082	grain size bag		Saturated Outwash: Gravelly sand, GP, with cobbles, gneiss and ganitoid cobbles and igneous crystalline chert and quartz gravel, rounded and polished	133-137: Bentonite 137-145: Sand 140-145: PVC Screen 2.5 inch diameter 145-158: Bentonite
150						Sand, SP, medium to fine grained, fining downward to bedrock interface	
						Bedrock, dark gray, siltstone, slaty cleavage	TD=158

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL005**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 4/1/2004
Completed: 4/1/2004

Surface Elevation (ft MSL): 1457
Total Depth (ft): 185
Easting (UTM): 429829.4
Northing (UTM): 5176754.3

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0					moist	Topsoil: Organic silt with sand, OL, moss and small roots	0-2: Cement 6 inch diameter borehole 2-8: Bentonite 0-15: PVC Casing 2 inch diameter 8-12: Bentonite 12-25: Sand 15-25: PVC Screen 2 inch diameter 0-2.5: Cement 2.5-113: Cement 0-123: PVC Casing 2.5 inch diameter
10						Unsaturated Outwash: Sand, SP, coarse to medium grained, red to reddish-brown, very well sorted, dry	
20						Saturated Outwash: Sand, SP, brown, fine-medium grained with coarse intervals,mostly rounded to subrounded quartz sand, with few angular, platy mafics	
30							
40						Silty sand, SM, fine sand	
50						Transitional Deposit: At 50 feet, silty sand, SM	
60						Lost recovery 60 - 70 feet	

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL005**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 4/1/2004
Completed: 4/1/2004

Surface Elevation (ft MSL): 1457
Total Depth (ft): 185
Easting (UTM): 429829.4
Northing (UTM): 5176754.3

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70						Silty sand to very fine sand, SM to SP-SM, saturated	
			EAG-1001083	grain size bag			
80						Lost recovery 78 - 83 feet	
						Sandy silt, ML, low plasticity	
90					saturated	Lacustrine Deposit: Clay, CL, reddish brown to gray, high plasticity, no structure or lamination, massive	
100						Saturated Outwash: Sand, SP, brown, fine-medium grained, coarsening downward	
110						Sandy gravel, GP, to gravelly sand, SP, with slate and gneiss cobbles, possibly drainage channel/river deposit	113-117: Bentonite
120			EAG-1001084	grain size bag			117-128: Sand 123-128: PVC Screen 2.5 inch diameter D
130						Sand with gravel, SP, brown, fining downward	128-185: Bentonite

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL005**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 4/1/2004
Completed: 4/1/2004

Surface Elevation (ft MSL): 1457
Total Depth (ft): 185
Easting (UTM): 429829.4
Northing (UTM): 5176754.3

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140							
150						Glacial Till: Silty clay, CL-ML Clayey gravel, GC, gray-brown, compacted till, angular to subangular bolder to gravel size clasts, poorly sorted	
160							
170						Sandy clay, CL	
180						Bedrock, siltstone, weathered and clay from 177 to 180, becoming more competent to 185	TD=185

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL006**

Project: **Eagle**

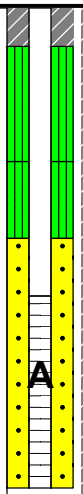
1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 4/2/2004
Completed: 4/3/2004

Surface Elevation (ft MSL): 1421
Total Depth (ft): 165
Easting (UTM): 433050.6
Northing (UTM): 5175886.3

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0					dry - moist	Topsoil: Organic silt with sand, OL, moss and small roots	0-2: Cement 6 inch diameter borehole
						Unsaturated Outwash: Sand, SP, red to reddish-brown, fine-medium grained, very well sorted	2-8: Bentonite 0-15: PVC Casing 2 inch diameter
10						Saturated Outwash: Sand, SP, brown, fine-medium grained with coarse intervals, mostly rounded to subrounded quartz	8-12: Bentonite 12-25: Sand
20			EAG-1001085	grain size bag	saturated		15-25: PVC Screen 2 inch diameter
30							
40						Transitional Deposit: Silty sand, SM, poor recovery	
50						Fine sand and silt, SM	
60						Poor core revocery	



0-2.5: Cement

2.5-68: Cement

0-75: PVC Casing 2.5 inch diameter

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL006**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 4/2/2004
Completed: 4/3/2004

Surface Elevation (ft MSL): 1421
Total Depth (ft): 165
Easting (UTM): 433050.6
Northing (UTM): 5175886.3

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70			EAG-1001086	grain size bag		Fine sand with silt, SP, fining down to sandy silt, ML	68-72: Bentonite 72-80: Sand 75-80: PVC Screen 2.5 inch diameter 80-165: Bentonite
80							
90						Silt, ML, brown, non-plastic, hard	
100							
110						Lacustrine Deposit: Clay, CL, reddish brown to gray, high plasticity, massive, no stratification or laminations	
120			EAG-1001075	Shelby tube	moist-wet		
130							

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL006**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 4/2/2004
Completed: 4/3/2004

Surface Elevation (ft MSL): 1421
Total Depth (ft): 165
Easting (UTM): 433050.6
Northing (UTM): 5175886.3

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140							
150						Glacial Till: Clayey gravel, GC, gray-brown, hard, angular to subangular bolder to gravel size clasts, poorly sorted	
160						Bedrock: Siltstone, dark gray,	TD=165

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL007**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 10/6/2004
Completed: 10/8/2004

Surface Elevation (ft MSL): 1476
Total Depth (ft): 248
Easting (UTM): 427474.85
Northing (UTM): 5179537.84

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0					moist	Unsaturated Outwash: Sand, SP, poorly graded fine-medium grained, reddish brown, rounded to sub-rounded, mostly quartz w/few to trace mafic mineral grains	0-2: 6 inch diameter borehole
10						Sand, SP, medium brown with dark brown stratification, fine-medium grained, trace rounded gravel and trace fines	2-39: Cement / Bentonite Grout
20							0-46: PVC Casing 2 inch diameter
30							
40							39-42: Bentonite
50			EAG-1001276	grain size bag	wet	Saturated Outwash: Sand, SP, light brown, fine-medium grained, trace fines	42-56: Sand
60						Transitional Deposit: Silty sand,	46-56: PVC Screen 2 inch diameter

0-2: Cement

2-168: Cement / Bentonite Grout

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL007**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 10/6/2004
Completed: 10/8/2004

Surface Elevation (ft MSL): 1476
Total Depth (ft): 248
Easting (UTM): 427474.85
Northing (UTM): 5179537.84

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70			EAG-1001277	grain size bag		SM, medium brown	
80					moist-wet	Lacustrine Deposit: Lean clay, CL, reddish brown to gray, medium - high plasticity, saturated, slow dilatency, medium toughness, no structure or lamination, massive	
90						Saturated outwash: Sand, SP, medium brown, fine-medium grained, trace fines but mostly clean, coarsening downward	0-175: PVC Casing 2.5 inch diameter
100							
110							
120							
130							

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL007**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 10/6/2004
Completed: 10/8/2004

Surface Elevation (ft MSL): 1476
Total Depth (ft): 248
Easting (UTM): 427474.85
Northing (UTM): 5179537.84

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140						Sand, SP, medium brown, medium grained, clean, trace fines, coarsening downward	
150							
160							
170					wet	Sand, SP, medium brown, medium-coarse grained	168-173: Bentonite 173-180: Sand 175-180: PVC Screen 2.5 inch diameter 180-182: Sand
180			EAG-1001278	grain size bag		Sand, SP, medium brown, fine grained	
190						Glacial Till: Silty sand, SM, medium brown to gray	182-248: Bentonite
			EAG-1001279	grain size		Lean clay, CL, medium brown, plastic	

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL007**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 10/6/2004
Completed: 10/8/2004

Surface Elevation (ft MSL): 1476
Total Depth (ft): 248
Easting (UTM): 427474.85
Northing (UTM): 5179537.84

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
200				bag		Saturated Outwash: Sand, SP, medium brown, coarse grained	
						Glacial Till: Silty sand, SM	
210						Saturated Outwash: Sand, SP, medium brown, fine grained	
						Glacial Till: Silty sand, SM	
220						Clayey sand, SC, medium brown to dark gray, many small fine grained lenses	
230						Saturated Outwash: Sand, SP, light brown, fine-medium grained, with fine grained dark color lenses	
240							TD = 248

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL008**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/30/2004
Completed: 10/6/2004

Surface Elevation (ft MSL): 1465
Total Depth (ft): 138
Easting (UTM): 432807.83
Northing (UTM): 5177916.14

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0						Unsaturated Outwash: Sand, SP, poorly graded, red to reddish brown, fine-medium grained, mostly quartz with few to trace mafics, trace gravel, dry	0-2: Cement, 6 inch diameter borehole
10			EAG-1001280	grain size bag		Sand, SP, light-brown to reddish-brown, fine-medium grained, moist	2-74: Cement / Bentonite Grout
20							
30			EAG-1001281	grain size bag			
40					dry	Gravelly sand, SP	0-80: PVC Casing 2 inch diameter
						Sand, SP, moist	
50						Sand, SP, tan to light brown	
						Sand, SP, tan to light brown, fine grained, dry	
60						Gravelly sand, SP	
						Sand, SP, tan, fine-medium	

0-2: Cement

2-109: Cement / Bentonite Grout

0-115: PVC Casing 2.5 inch diameter

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL008**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/30/2004
Completed: 10/6/2004

Surface Elevation (ft MSL): 1465
Total Depth (ft): 138
Easting (UTM): 432807.83
Northing (UTM): 5177916.14

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70						grained Sand, SP, dark brown to grayish brown, fine-medium grained	
					moist	Saturated outwash: Silty sand, SM, moist	74-78: Bentonite
80					moist-wet	Sandy silt, ML, non-plastic, moist to wet	78-91: Sand
			EAG-1001282	grain size bag	saturated	Transitional Deposit: Sand, SP, fine-medium grained, wet to saturated	80-90: PVC Screen 2 inch diameter
90			EAG-1001283	grain size bag		Silty fine sand, SP, fining to silt, ML	90-91: Sand
						Lacustrine Deposit: Lean clay, CL, reddish brown to gray, plastic, saturated, no structure or lamination, massive	
100					moist		
			EAG-1001284	shelby tube			
110					saturated	Saturated Outwash: Sand, SP, fine-medium grained, coarsening to medium grained sand with gravel and cobbles	109-113: Bentonite 113-122: Sand
			EAG-1001285	grain size bag		Sand, SP, fining down to silty sand, SM	115-120: PVC Screen 2.5 inch diameter 120-122: Sand
120					moist-wet	Glacial Till: Clayey sand, SC, reddish-brown with gravel, boulders and cobbles	
130							122-138: Bentonite

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL008**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/30/2004
Completed: 10/6/2004

Surface Elevation (ft MSL): 1465
Total Depth (ft): 138
Easting (UTM): 432807.83
Northing (UTM): 5177916.14

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
					dry	Bedrock, dark gray siltstone	TD = 138

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL009**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: RRE and DWW, North Jackson Co.
Sampling method: Continuous sonic core

Started: 9/26/2004
Completed: 9/29/2004

Surface Elevation (ft MSL): 1455
Total Depth (ft): 258
Easting (UTM): 433605.26
Northing (UTM): 5177475.05

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0						Topsoil: Organic silt with sand, OL, dark brown, with moss and small roots	0-2: Cement 6 inch diameter borehole 2-94: Cement / Bentonite Grout 0-100: PVC Casing 2 inch diameter
10					dry	Unsaturated Outwash: Sand, SP, poorly graded, red to reddish brown, fine-medium grained, mostly quartz with few to trace mafics, trace gravel, dry	0-2: Cement 2-134: Cement / Bentonite Grout 0-140: PVC Casing 2.5 inch diameter
20						Sand, SP, brown, fine-medium grained, dry at 17', moist at 37', moist-wet at 47'	
30							
40			EAG-1001286	grain size bag			
50					moist	Sand, SP, brown, fine grained, moist, checked for water at 58' - proved dry	
60							

North Jackson Company

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Boring/Well Construction Report

Bore Hole: **QAL009**

Project: **Eagle**

Owner: Kennecott Minerals Co.

Contractor: Prosonic

Geologist: RRE and DWW, North Jackson Co.

Sampling method: Continuous sonic core

Started: 9/26/2004

Completed: 9/29/2004

Surface Elevation (ft MSL): 1455

Total Depth (ft): 258

Easting (UTM): 433605.26

Northing (UTM): 5177475.05

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70							
80							
90							
100			EAG-1001287	grain size bag	wet	Saturated Outwash: Sand, SP, brown, very fine grained, moist	94-98: Bentonite
						Sand, SP, brown, fine grained, moist	98-110: Sand
110						Sand, SP, brown, very fine grained, moist	100-110: PVC Screen 2 inch diameter
						Sand, SP, brown, fine grained, moist	110-111: Sand
120						Sand, SP, brown, very fine grained, moist	
						Sand, SP, brown, fine grained, moist	
130						Sand, SP, brown, fine-medium grained	

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL009**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

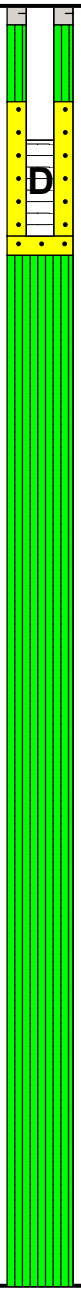
Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: RRE and DWW, North Jackson Co.
Sampling method: Continuous sonic core

Started: 9/26/2004
Completed: 9/29/2004

Surface Elevation (ft MSL): 1455
Total Depth (ft): 258
Easting (UTM): 433605.26
Northing (UTM): 5177475.05

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description
140						Sand, SP, brown, medium-coarse grained, wet
			EAG-1001288	grain size bag		Glacial Till: Sand, SP, brown, medium-coarse grained, with 3" thick clay lense, CL
150						Sand, SP, brown, medium-coarse grained sand with clay lenses, CH
			EAG-1001289	grain size bag		
160						Silty sand, SM, tan to brown, very hard, dry, with clay, CL, "hard pan"
			EAG-1001290	grain size bag		
170					dry	
180						
			EAG-1001291	grain size bag		
190						

Well Construction
(Sonic Rig Installation)



134-138: Bentonite
138-145: Sand
140-145: PVC Screen 2.5 inch diameter
145-146: Sand
146-258: Bentonite

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL009**

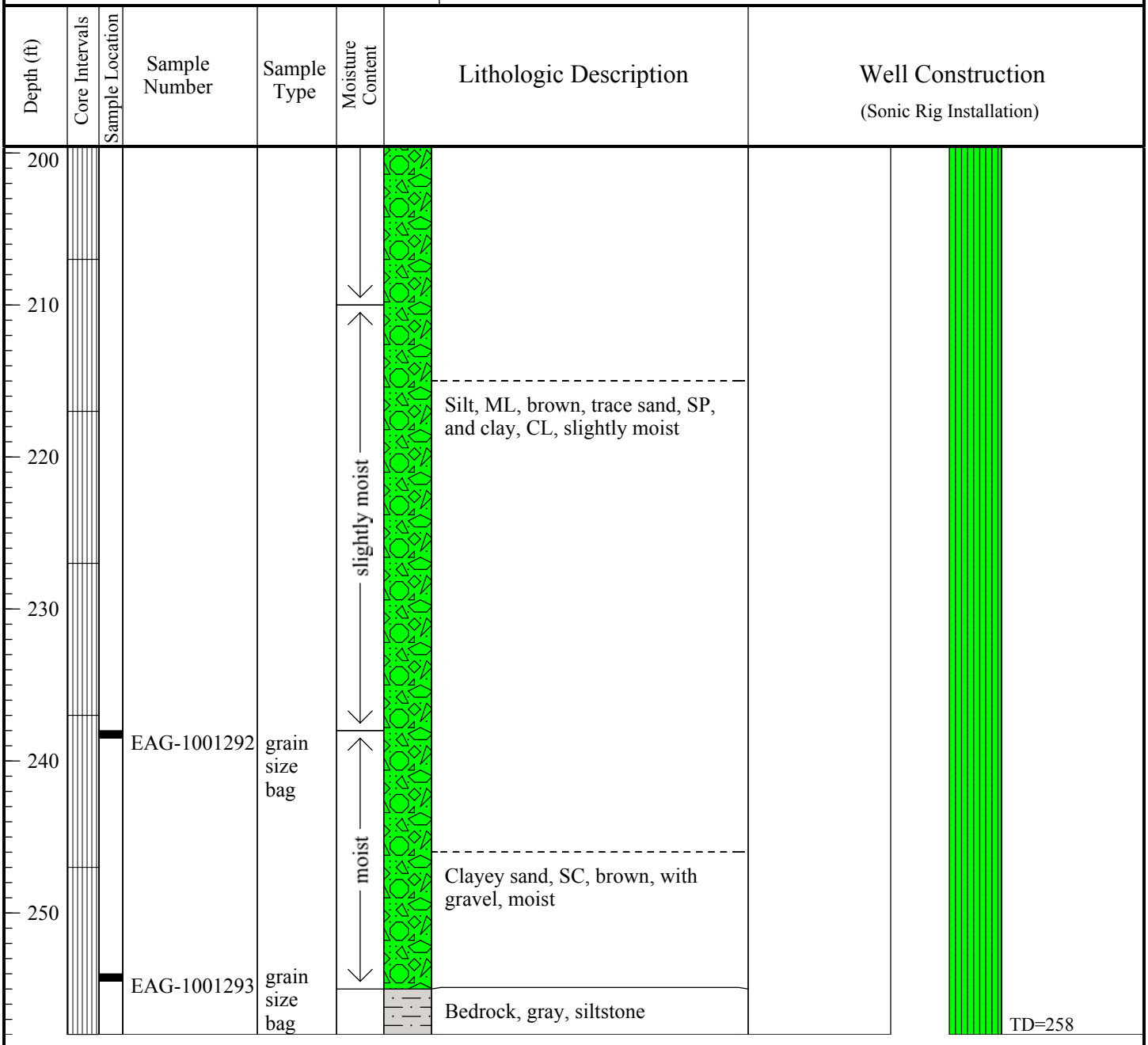
Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: RRE and DWW, North Jackson Co.
Sampling method: Continuous sonic core

Started: 9/26/2004
Completed: 9/29/2004

Surface Elevation (ft MSL): 1455
Total Depth (ft): 258
Easting (UTM): 433605.26
Northing (UTM): 5177475.05



North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL010**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: RRE, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

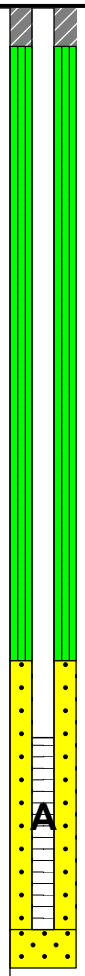
Started: 10/9/2004
Completed: 10/10/2004

Surface Elevation (ft MSL): 1442
Total Depth (ft): 198
Easting (UTM): 435880.37
Northing (UTM): 5174304.51

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description
0					moist	Topsoil: Organic silt with sand, OL, dark brown, with moss and small roots
10						Unsaturated Outwash: Sand, SP, light brown, fine-coarse grained, mostly quartz sand
20						Sand, SP, light brown, medium-coarse grained
30					saturated	Saturated Outwash: Sand, SP, brown, medium grained
40			EAG-1001294	grain size bag		Sand, SM, brown, fine grained to silty
50						Sand, SP, brown, medium grained
60						Transitional Deposit: Silty sand, SM, brown
						Lacustrine Deposit: Lean clay, CL, brown, high plasticity,no structure or lamination, massive

Well Construction

(Sonic Rig Installation)



0-2: Cement 6 inch diameter borehole

2-34: Bentonite

0-38: PVC Casing 2 inch diameter

34-48: Sand

38-48: PVC Screen 2 inch diameter

48-50: Sand

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL010**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: RRE, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 10/9/2004
Completed: 10/10/2004

Surface Elevation (ft MSL): 1442
Total Depth (ft): 198
Easting (UTM): 435880.37
Northing (UTM): 5174304.51

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70					moist- wet		
80							
90						Unsaturated Outwash: Sand, SP, brown, medium-coarse grained	
100			EAG-1001295	grain size bag		Sand, SP-SM, very light brown to dark yellow, medium-coarse grained with gravel and silt, very dry, pulled back casing at 102 feet, no water	
110						Glacial Till: Sand, SP, fine-medium grained with gravel and clay lenses, CL, up to 4" thick, dry	
120							
130							

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL010**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: RRE, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 10/9/2004
Completed: 10/10/2004

Surface Elevation (ft MSL): 1442
Total Depth (ft): 198
Easting (UTM): 435880.37
Northing (UTM): 5174304.51

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140			EAG-1001296	grain size bag	dry	Lean clay, CL to GC, brown, with sand, gravel and boulders	
						Unsaturated Outwash: Sand, SP,very light brown to yellow, fine-medium grained, with gravel, trace clay and silt, dry	
150							
160							
170							
180			EAG-1001297	grain size bag		Sand, SP, dark brown, fine-medium grained, with silt and angular black shale cobbles, dry	
190						Bedrock: Siltstone, dark gray	TD=198

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL011**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, PMK, JGM, RRE, North Jackson Co.
Sampling method: Cable Tool Bailer

Started: 9/11/2004
Completed: 10/11/2004

Surface Elevation (ft MSL): 1449
Total Depth (ft): 135
Easting (UTM): 431863.24
Northing (UTM): 5176713.14

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description
0					moist	Unsaturated Outwash: Sand, SP, medium brown, medium-coarse grained
10						
20						
30						Saturated Outwash: Sand, SP, medium brown, fine-medium grained
40			EAG-1001298	grain size bag		Sand, SP, medium brown, fine grained, fining downward
50						Transitional Deposit: Silty sand, silt, silty clay, SM to ML, medium brown, fining downward
60					wet	

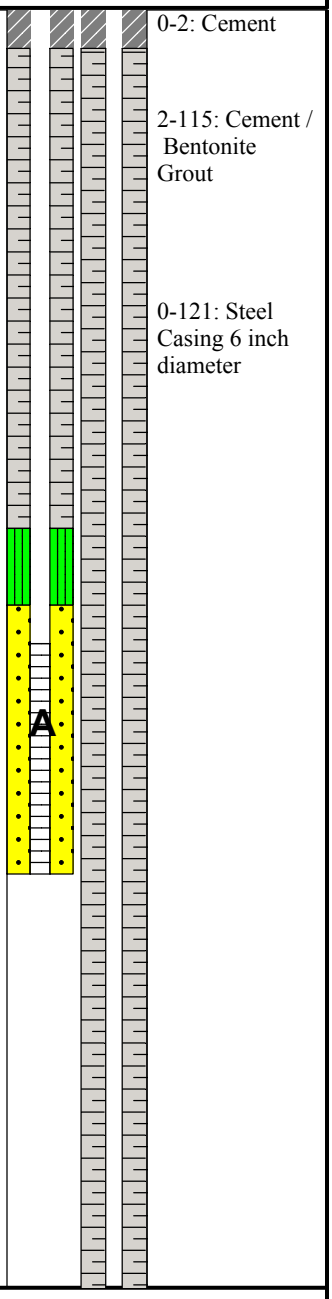
Well Construction

Sonic Rig Installation

- 0-2: Cement 6 inch diameter borehole
- 2-27: Cement / Bentonite Grout
- 0-33: Steel Casing 6 inch diameter
- 27-31: Bentonite
- 31-45: Sand
- 33-45: Stainless Steel Screen 6 inch diameter

Cable Tool Rig Installation

- 0-2: Cement
- 2-115: Cement / Bentonite Grout
- 0-121: Steel Casing 6 inch diameter



North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL011**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: DWW, PMK, JGM, RRE, North Jackson Co.
Sampling method: Cable Tool Bailer

Started: 9/11/2004
Completed: 10/11/2004

Surface Elevation (ft MSL): 1449
Total Depth (ft): 135
Easting (UTM): 431863.24
Northing (UTM): 5176713.14

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction
70						Lacustrine Deposit: Silty clay, CL/ML, moderate plasticity, massive	Sonic Rig Installation / Cable Tool Rig Installation
80							
90							
100					moist	Lean clay, CL, reddish brown to gray, plastic, no structure or lamination, massive	
110						Sandy lean clay with trace gravel, CL	
120					wet	Saturated Outwash: Gravelly Sand, SP, medium-coarse grained	115-119: Bentonite 119-135: Sand 121-135: Steel Screen 6 inch diameter
130						Sand, SP, medium to fine grained, with gneiss and granitoid cobbles	
						Sand, SP, medium to fine grained	

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL011**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.

Contractor: Prosonic

Geologist: DWW, PMK, JGM, RRE, North Jackson Co.

Sampling method: Cable Tool Bailer

Started: 9/11/2004

Completed: 10/11/2004

Surface Elevation (ft MSL): 1449

Total Depth (ft): 135

Easting (UTM): 431863.24

Northing (UTM): 5176713.14

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction: Sonic Rig Installation	Well Construction: Cable Tool Rig Installation
								TD=135

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL012**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: JGM, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

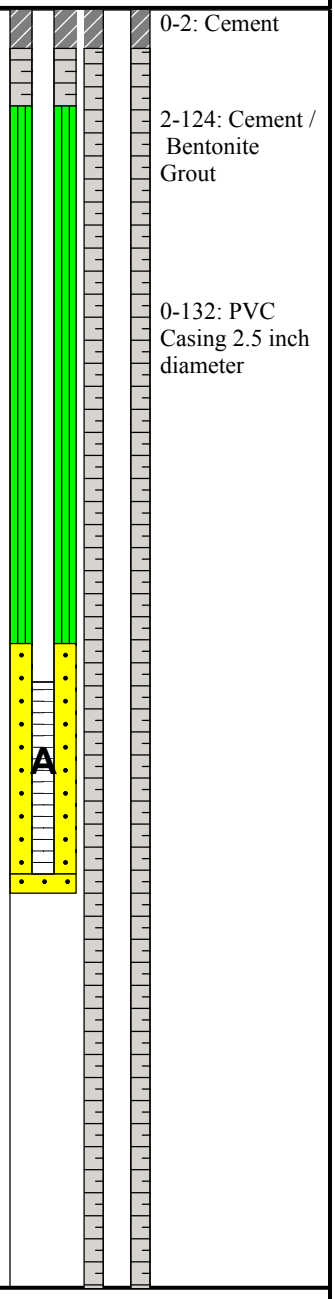
Started: 9/25/2004
Completed: 9/25/2004

Surface Elevation (ft MSL): 1450
Total Depth (ft): 151
Easting (UTM): 431855.31
Northing (UTM): 5176709.08

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description
0					moist	Unsaturated Outwash: Sand, SP, reddish brown, fine-medium grained, mostly quartz sand
10						Sand, SP, light brown, fine-medium grained
						Sand, SP, light brown, fine grained
20						Sand, SP, light brown, fine-medium grained
						Sand, SP, light brown, fine grained
30						Saturated Outwash: Sand, SP, light brown, fine grained, fining downward
40						
50					wet	Transitional Deposit: Silt, ML, silty clay and clayey silt
60						

Well Construction

(Sonic Rig Installation)



North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL012**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: JGM, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/25/2004
Completed: 9/25/2004

Surface Elevation (ft MSL): 1450
Total Depth (ft): 151
Easting (UTM): 431855.31
Northing (UTM): 5176709.08

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70							
80					moist	Lacustrine Deposit: Lean clay, CL, reddish brown to gray, high plasticity, no structure or lamination, massive	
90							
100						Sandy lean clay, CL, with gravel	
110					wet	Saturated Outwash: Sand, SP, coarse grained, with gravel	
120						Gravelly Sand, SP, gravel fraction is quartz, chert and crystalline rock origin, rounded	124-130: Bentonite
130						Sand, SP, light brown, medium grained, trace gravel	130-137: Sand

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL012**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: JGM, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/25/2004
Completed: 9/25/2004

Surface Elevation (ft MSL): 1450
Total Depth (ft): 151
Easting (UTM): 431855.31
Northing (UTM): 5176709.08

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140						Sand, SP, light brown, fine-medium grained	D: 132-137: PVC Screen 2.5 inch diameter
						Glacial Till: Clayey sand, SC, brown, with gravel	137-139: Sand
							139-151: Bentonite
150						Clayey sand, SC, gray, with gravel	TD=151
						Bedrock, Siltstone, very dark gray	

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL013**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK and JGM, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

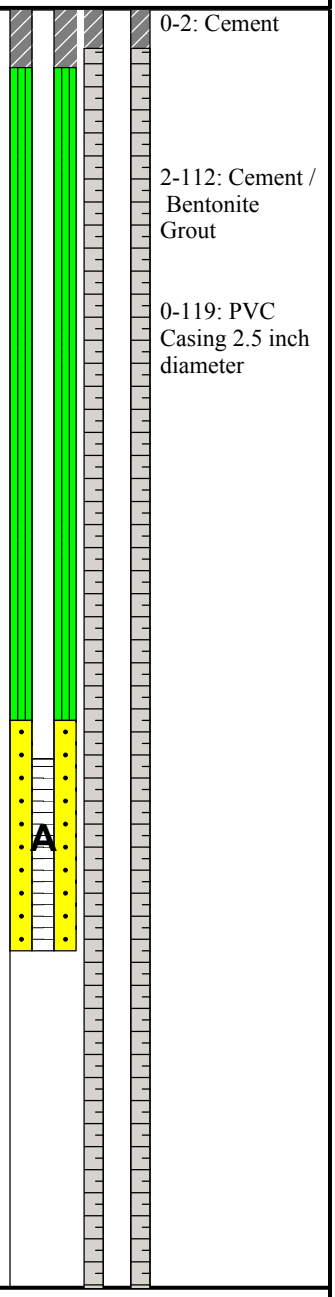
Started: 9/24/2004
Completed: 9/24/2004

Surface Elevation (ft MSL): 1451
Total Depth (ft): 154
Easting (UTM): 431845.51
Northing (UTM): 5176703.53

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description
0					moist	Unsaturated Outwash: Sand, SP, light brown, fine-medium grained, trace gravel
10						Sand, SP, reddish-brown, fine-medium grained, coarsening downward
20			EAG-1001299	grain size bag		
30					wet	Saturated Outwash: Sand, SP, medium brown, mostly fine-grained, lenses (up to 4 inches thick) of coarser and finer grained sand
40			EAG-1001300	grain size bag		
50						Transitional Deposit: Silty sand, SM, medium brown, fining downward to silt, ML
60						

Well Construction

(Sonic Rig Installation)



North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL013**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK and JGM, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/24/2004
Completed: 9/24/2004

Surface Elevation (ft MSL): 1451
Total Depth (ft): 154
Easting (UTM): 431845.51
Northing (UTM): 5176703.53

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70			EAG-1001301	grain size bag			
			(67-69') EAG-1001302	(67-69) shelby tube	moist	Lacustrine Deposit: Lean clay, CL, reddish brown to gray, high plasticity, no structure or lamination, massive	
80							
90							
100							
110						Sandy Clay, CL	112-116: Bentonite
						Saturated Outwash: Sand, SP, medium brown, fine-coarse grained, with gravel	116-124: Sand
120			EAG-1001303	grain size bag			119-124: PVC Screen 2.5 inch diameter (D)
							124-154: Bentonite
130						Gravelly Sand, SP, with pebbles, quartz and chert and igneous rock	

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL013**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK and JGM, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/24/2004
Completed: 9/24/2004

Surface Elevation (ft MSL): 1451
Total Depth (ft): 154
Easting (UTM): 431845.51
Northing (UTM): 5176703.53

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140			EAG-1001304	grain size bag	wet	pebbles, rounded Glacial Till: Clayey sand, SC, red to brown, with silt and gravel	
150						Bedrock: Siltstone, dark gray	TD=154

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL014**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/22/2004
Completed: 9/23/2004

Surface Elevation (ft MSL): 1448
Total Depth (ft): 157
Easting (UTM): 431825.65
Northing (UTM): 5176692.28

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0					moist	Unsaturated Outwash: Sand, SP, reddish brown, fine-medium grained, trace gravel, mostly quartz sand, rounded to subrounded	0-3: Cement 6 inch diameter borehole 3-38: Bentonite 0-40: PVC Casing 2 inch diameter 38-50: Sand 40-50: PVC Screen 2 inch diameter 0-2: Cement 2-128: Cement / Bentonite Grout 0-134: PVC Casing 2.5 inch diameter
10						Sand, SP, medium brown, medium-coarse grained	
20						Sand, SP, medium brown, fine-medium grained and fining downward, with dark color stratifications (up to 0.2 inches thick)	
30					wet	Saturated Outwash: Sand, SP, medium brown, fine-medium grained and fining downward, with dark color stratifications (up to 0.2 inches thick)	
40			EAG-1001305	grain size bag			
50						Transitional Deposit: Silty sand, SM-ML, medium brown, fining downward	
60							

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL014**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/22/2004
Completed: 9/23/2004

Surface Elevation (ft MSL): 1448
Total Depth (ft): 157
Easting (UTM): 431825.65
Northing (UTM): 5176692.28

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
70							
80					moist	Lacustrine Deposit: Lean clay, CL, reddish brown to gray, high plasticity, no structure or lamination, massive	
90							
100							
110			EAG-1001306	shelby tube		Sandy clay, CL, with some gravel	
120						Saturated Outwash: Sand, SP, medium brown, fine-medium grained sand, with silt and gravel	
130					wet	(133-137) Sand, SP, medium brown, fine-medium grained,	128-132: Bentonite

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL014**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/22/2004
Completed: 9/23/2004

Surface Elevation (ft MSL): 1448
Total Depth (ft): 157
Easting (UTM): 431825.65
Northing (UTM): 5176692.28

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
140			EAG-1001307	grain size bag	W	clean Sand, SP, medium brown, medium-coarse grained, only trace fines Gravelly sand, SP, medium brown, fine-medium grained	D 130-139: Sand 134-139: PVC Screen 2.5 inch diameter 139-141: Sand
150						Glacial Till: Clayey sand, SC, gray to brown, with gravel and cobbles Bedrock: Siltstone, very dark gray	141-157: Bentonite TD=157

North Jackson Company

Boring/Well Construction Report

Bore Hole: **QAL023**

Project: **Eagle**

1004 Harbor Hills Drive, Suite 102 PO Box 218 Marquette, MI 49855 phone: 906.225.6787 fax: 906.225.6769

Owner: Kennecott Minerals Co.
Contractor: Prosonic
Geologist: PMK, North Jackson Co.
Sampling method: Continuous 4 in. sonic core

Started: 9/22/2004
Completed: 9/22/2004

Surface Elevation (ft MSL): 1418
Total Depth (ft): 37
Easting (UTM): 431441.65
Northing (UTM): 5177593.25

Depth (ft)	Core Intervals	Sample Location	Sample Number	Sample Type	Moisture Content	Lithologic Description	Well Construction (Sonic Rig Installation)
0					wet	Topsoil: Organic silt with sand, OL, dark brown, with moss and small roots	0-4: Cement 6 inch diameter borehole
					moist	Saturated Outwash: Sand, SM, medium brown, fine grained, saturated	4-25: Bentonite
						Transitional Deposit: Silty lean clay, CL, light brown, saturated	
10							0-27: PVC Casing 2 inch diameter
			EAG-1001308	grain size bag	wet		
20						Sand, SP, medium brown, medium grained with gravel and silt	
						Silty sand, SM, medium brown	25-32: Sand
						Sand, SP-SM, fine-medium grained with silt	27-32: PVC Screen 2 inch diameter
30			EAG-1001309	grain size bag			
						Glacial Till: Silty clayey sand, SC-SM, with gravel	32-37: Bentonite
			EAG-1001310	grain size bag		Crystalline bedrock, dark green, competent, Peridotite	TD=37

APPENDIX B

Pumping Test Reports

ANALYSIS OF DATA FROM A- AND D-ZONE PUMPING TESTS ON THE YELLOW DOG PLAINS

EAGLE PROJECT
MARQUETTE COUNTY, MICHIGAN

Revised September 2005

PREPARED FOR

Kennecott Minerals Company,
North Jackson Company, and
Golder Associates, Inc.

PREPARED BY

Fletcher Driscoll & Associates LLC



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I. INTRODUCTION

This report summarizes the analysis of data collected from two constant-rate pumping tests conducted as part of the Stage 2 Baseline Environmental Study for Kennecott's Eagle Project. The tests were conducted to determine relevant hydraulic parameters for the hydrogeologic units beneath the Yellow Dog Plains referred to in this study as the A and D hydrostratigraphic units (zones). The primary objectives of this report are to present the following:

- The general bases for design and layout of the test wells,
- A synopsis of the test conditions[1],
- A description of the methods used to analyze the data,
- Plots of drawdown data produced for the analysis,
- A summary of the aquifer parameters calculated from the analysis, and
- Additional conclusions drawn from the test.

The analyses presented in this report are primarily based on a review of the Stage 1 Baseline Environmental Study (Stage 1 Study) and groundwater level data collected by North Jackson Company before, during and after the pumping test. Data from other sources (for example, precipitation data from Golder Associates, Inc.) were also used to supplement the analyses.

[1] North Jackson Company directed the well completion and pumping test execution. A representative of Fletcher Driscoll & Associates served as an on-site advisor for most, but not all of time during which the pumping tests were run.

II. DESIGN OF THE A- AND D-ZONE PUMPING TESTS

Two constant-rate pumping tests were conducted primarily to determine the hydraulic parameters for the A and D hydrostratigraphic units (zones). These units are glacial outwash deposits composed of mostly sand-sized particles. These outwash deposits constitute the primary transmissive hydrostratigraphic units close to the Eagle Project (North Jackson Company, 2004). Fletcher Driscoll & Associates helped develop the test objectives and provided recommendations for the design and layout of the test wells. This guidance was based on stratigraphic, lithologic and groundwater level data collected in the Stage 1 hydrology study (North Jackson Company, 2004), as well as the results of short-term specific capacity tests conducted in some of the monitoring wells during that investigation. Data from the specific capacity tests were analyzed by Fletcher Driscoll & Associates using an iterative method incorporating the Theis equation. This approach accounted for the pumping time during the specific capacity tests, as well as the effects of partial penetration and well-efficiency. The results of these analyses were used to estimate aquifer hydraulic conductivities which were used in a Theis analysis for establishing well spacing and setting target pumping rates. Well construction specifications for these tests were also developed based on the geologic soil boring logs and soil grain size analyses from the Stage 1 study.

Data from the Stage 1 Study indicate that, within a broad area of the central Yellow Dog Plains, the A and D zones are separated by a fine-grained (mostly silt and clay), low-conductivity sediments that limits the hydraulic connection between the two outwash units. Understanding the nature of this connection is important to defining the groundwater system of the Project area and its response to natural or artificial stresses. Thus, another objective of the testing was to evaluate whether stressing either aquifer would result in measurable hydraulic communication from one transmissive zone to the other.

The overall objectives that guided the design and execution of the two tests can be summarized as follows:

- Determine primary hydraulic parameters for each aquifer (transmissivity for both zones, specific yield for the unconfined A zone, and storage coefficient for the confined D zone),

- Pump the production wells at rates high enough to stress a significant volume of the aquifer surrounding the test wells, thereby ensuring that hydraulic parameters determined from the test represent a broad area,
- Maintain a constant pumping rate throughout the test to support rigorous data analysis,
- Use production wells that are hydraulically efficient to ensure the optimal yields consistent with available drawdown,
- Use a linear array of observation well nests (closely spaced pairs), one screened in the A zone and the other screened in the D zone, to detect water level changes in one zone in response to pumping in the other,
- Space the observation wells so that drawdown can be detected in all wells for the D-zone test and in all but the farthest well for the A-zone test[2],
- Collect pre-test and background groundwater levels and climate data to determine if any changes in environmental conditions affect the test data,
- Measure drawdowns and pumping rates at regular intervals,
- Pump the production wells for a sufficient duration to produce measurable drawdown in more distant observation wells and to overcome delayed drainage effects (unconfined aquifer only), and
- Incorporate adequate quality assurance procedures to ensure that data are accurate and meet the objectives established for the testing.

The production wells (QAL011A and QAL011D) used for the two tests are located in the central portion of the Yellow Dog Plains, about 500 feet northeast of the existing well nest QAL004A/D (Figure 7 of the North Jackson Company Hydrology Study Interim Report). The wells are approximately 500 feet east of the Salmon Trout River and about 3,000 feet southwest of the peridotite bedrock outcrop near the location of the proposed mine facility. Observation wells were positioned in a line oriented generally northeast to southwest, that is, generally parallel with regional groundwater flow in this area. Construction details for the test wells are shown in the table below and are also presented in cross section in Figure 33 of the Environmental Baseline Study Hydrology Report.

[2] The radius of influence (distance to zero drawdown effects) extends much farther from a production well in a confined aquifer (D zone) than from a production well in an unconfined aquifer (A zone), if all other conditions are equal.

Well	Diameter (inches)	Zone	Screen Top (ft bgs)[3]	Screen Btm (ft bgs)	Screen Top (ft > amsl)[4]	Screen Btm (ft > amsl)
QAL011A	6	A	33	45	1416	1404
QAL011D	6	D	121	135	1328	1314
QAL012A	2	A	35	45	1415	1405
QAL012D	2.5	D	132	137	1318	1313
QAL013A	2	A	39	49	1412	1402
QAL013D	2.5	D	119	124	1332	1327
QAL014A	2	A	40	50	1408	1398
QAL014D	2.5	D	134	139	1314	1309
QAL004A	2	A	45	55	1403	1393
QAL004D	2.5	D	140	145	1308	1303

[3] ft bgs = feet below ground surface

[4] ft > amsl = feet above mean sea level

III. EXECUTION OF THE A- AND D-ZONE PUMPING TESTS

The two constant-rate tests were conducted over a 9-day period from October 21 to 29, 2004. Groundwater level data were collected in QAL004A and QAL004D using pressure transducers for 3 weeks before the start of the D-zone test, which was the first test run (Figures 3-1 and 3-2). Water levels were also recorded in wetland piezometer WLD022 (Figure 3-3) located near the Salmon Trout River Main Branch about 500 feet west of the pumping wells. Data collection continued through the end of the A-zone recovery period. Pre-test water level measurements were analyzed to identify any trends in ambient water levels (not affected by pumping) that would affect test results. Precipitation data were available from the Eagle Project weather station on the Yellow Dog Plains (Figure 3-4). Barometric pressure data were obtained from the National Weather Service station at the Sawyer International Airport at Marquette, Michigan (Figures 3-5).

D-ZONE TEST

The D-zone test began October 21 and was completed on October 23. The test included a 24 hour constant rate test with a 24-hour, post-pumping recovery period to achieve nearly pre-pumping water levels in the D-zone during continuous monitoring. Weather conditions through the test were generally stable, with only 1.5 millimeters (0.005 feet) of rain falling during the last portion of the pumping period and 0.6 millimeters (0.002 feet) near the end of the recovery period. The production well QAL011D was pumped at a nearly constant rate that averaged 50 gallons per minute (gpm) for 24 hours. Some adjustment of the rate was required in the first few minutes of the test. The pumping rate was monitored throughout the test using a circular orifice weir and a totalizing flow meter. The meter was checked against the weir and found to be accurate. Water was discharged to a low area approximately 500 feet east-southeast of the test well field that was far enough away to prevent recharge effects on drawdown data.

Transducers installed in each test well (both D-zone and A-zone wells) collected pressure (head) data throughout the test. Manual measurements also were taken during the test and the data were analyzed in the field so that any anomalous conditions could be detected and the test restarted, if necessary.

A-ZONE TEST

The A-zone test was run from October 25, 2004 and completed on October 29, 2004. The test included a 72-hour, constant-rate pumping period, with a 24-hour, post-pumping

recovery period. The start of the A-zone test was delayed because heavy rainfall occurred at the planned start time. Water level data collected during the background monitoring period indicated that a lag time of approximately 24 to 36 hours occurs between the beginning of a significant rainfall event and fall off in the groundwater response. Thus, the test was started over 36 hours after the rainfall event ended to avoid significant influence of recharge on groundwater levels. Little rain fell during the test itself. Only 0.4 millimeters (0.001 feet) fell during the pumping period and 0.7 millimeters (0.002 feet) fell during the recovery period.

A target pumping rate of 20 to 25 gpm was estimated for the A-zone test based analysis of the short-term specific capacity tests conducted in the Stage 1 hydrology study. During pre-test trials, however, it became apparent that a rate this high could not be sustained for test duration. In fact, additional trials indicated that a rate greater than 12 gpm might have been too high if a negative boundary were detected. Thus, the target rate was revised to 12 gpm. Once the test was underway, it became clear that the rate limitation was caused by low well efficiency, which could have been corrected to some degree by additional well development. Because the effects of well inefficiency can be readily accommodated in the test analyses and because near-term weather conditions were uncertain the test was continued at the 12-gpm rate. This rate produced a less-than-planned stress on the aquifer during testing, but does not substantially affect the overall test results.

Although the flow control valve had been set during pre-testing, some adjustments were necessary within the first few minutes of the test. Water level fluctuations resulting from these adjustments appear in the first 10 minutes of drawdown data but do not affect the overall data set. The pumping rate was monitored by the totalizing flow meter used in the D-zone test and was held constant at 12 gpm through the three-day pumping period. Transducers in all of the test wells collected head data throughout the test. Manual measurements of groundwater levels were also collected from the test wells during the test. These data were analyzed in the field to ensure that no anomalous conditions occurred that would jeopardize test reliability and force early termination of the test. Pumping continued at the established rate for about 24 hours at which time the pump was shut off and the recovery period began.

IV. ANALYSIS OF THE D-ZONE PUMPING TEST

Drawdown data from the pumping period were plotted versus time for analysis by Jacob (Cooper and Jacob, 1946) and Theis (Theis, 1935) methods. Drawdown data collected at 120 minutes into the pumping period from each test well were also plotted versus distance for analysis using Jacob techniques. Residual drawdown from the recovery period drawdown was plotted versus the t/t', which is the ratio of time since pumping began to the time since recovery began (pumping stopped).

Barometric pressure, precipitation and baseline groundwater levels were evaluated for trends that could have affected drawdown data collected during the test. Barometric pressure was generally stable before and during most of the test, although it fell during the latter half of the test (Figure 3-5). The barometric efficiency of the D-zone aquifer cannot be calculated from this data set, but even if the barometric efficiency of the aquifer were high, the overall barometric pressure changes (less than 0.4 feet of water) were not enough to produce significant effects in the drawdown data. Some rainfall occurred during the end of the pumping period, but because the D-zone is a confined aquifer the test data should not be affected. Groundwater levels in QAL004D were rising in the period before the test but the rate of change was low (Figure 3-2). Thus, this trend, like the other changes in ambient conditions, does not affect the reliability of the test data.

TIME-DRAWDOWN ANALYSES

Jacob and Theis methods were used to analyze drawdown data from the transducers during the D-zone test. Drawdown data were plotted versus the pumping time on a semi-log graph (logarithmic scale on the X axis) and analyzed using the Jacob method (Figures 4-1 through 4-5). Drawdown was also plotted versus time on a log-log (logarithmic scales for both X and Y axes) for the production and observation wells for analysis by the Theis method (Figures 4-6 through 4-10). Drawdown data from the pumping well were corrected for well efficiency before plotting data for the Theis analysis.[5] Hydraulic parameters for the D-zone calculated from both methods are presented in Table 1. Match points determined in the Theis analyses are listed in Table 2. Generally, both time-drawdown methods produce similar results for transmissivity and storage coefficient. Only the data from QAL011D analyzed by the Jacob method appear anomalous because

[5] Well efficiency was estimated to be 70 percent based on analysis of transmissivity values from time-drawdown data (Driscoll, 1986).

of well inefficiency. Excluding these data the average transmissivity and storage coefficient values are approximately 6,000 gpd/ft and 1.7E-4, respectively.

The Jacob (straight-line) method is often used to confirm the results of a Theis analysis because it is easier to establish a line of best fit using the Jacob method than it is to match the Theis type curve to time-drawdown data. In addition, the Jacob method allows easy detection of any deviations from the straight-line plot. Such a deviation appears in the D-zone test graphs beginning at approximately 150 minutes. At this time the slope of the time-drawdown plot increased significantly indicating that a reduction in transmissivity (negative boundary) occurs at some distance from the production well. This lower transmissivity could result from a reduction in either aquifer thickness or aquifer hydraulic conductivity. The exact nature and location of this change cannot be determined from the test because the well layout was not designed for that purpose. The likely cause of this negative boundary is the 'pinch out' of the D-zone outwash unit by fine-grained deposits and shallow bedrock, as discussed in the Stage 1 Hydrology Report (North Jackson Company, 2004). Thus, it is probable that the reduced aquifer thickness north/northeast and/or east/southeast of the test area results in the lower transmissivity reflected in the Jacob time-drawdown data.

DISTANCE-DRAWDOWN ANALYSIS

Drawdown data collected from the test wells at 120 minutes into the pumping test were plotted for a distance-drawdown analysis (Figure 4-11). The data used for the analysis are shown below:

Well Name	Distance from Pumped Well QAL 011D (feet)	Drawdown at 120 Minutes (feet)
QAL012D	39	5.666
QAL013D	75	5.182
QAL014D	150	3.408
QAL004D	500	1.913

Data from 120 minutes were used because subsequent data were affected by the negative boundary apparent in the time-drawdown data. Transmissivity values calculated from distance drawdown analyses are generally considered to be a more reliable measure of the average transmissivity in the area influenced by pumping. The objective, however, for the pumping test on the Yellow Dog Plains is to determine an average hydraulic conductivity value for the sediments. When the aquifer thickness varies over the area of

pumping, such as occurs in this test area, results from time-drawdown analyses generally provide more representative values. The transmissivity calculated from the distance-drawdown analysis for this test is 7,900 gpd/ft. The storage coefficient determined by this method is 1.0E-4.

Recovery Analyses

Recovery data are often more reliable than time-drawdown data because any variations in pumping rate are averaged over the entire data set. Recovery data from the D-zone test, however, were affected by the negative boundary condition evident in the drawdown data from the pumping period (Figures 4-12 through 4-15). Generally, though, the average transmissivity of about 6,100 gpd/ft determined from the recovery analyses matches the average value from time-drawdown methods. Storage coefficients, however, could not be calculated from the recovery data because of the negative boundary effects.

Hydraulic Conductivity of D-Zone Sediments

Hydraulic conductivity values were calculated by dividing the average transmissivity at each well by the D-zone thickness from well log data (Table 1). Average conductivity values ranged from 32 to 55 ft/day. The highest value was from QAL004D where the D-zone was thinnest.

Hydraulic Connection Between the A and D Zones

One of the test objectives was to evaluate the hydraulic connection between the A and D zones. For this analysis, groundwater levels from A-zone wells were examined to determine if any response occurred as the result of pumping in the D-zone production well QAL011D. Any hydraulic connection between the two units should be indicated by a decline in A-zone groundwater levels.

Groundwater levels in wells QAL011A, QAL012A, QAL013A, and QAL004A did not fall but remained generally stable during pumping; varying less than 0.01 ft up or down. Levels in QAL011A and QAL012A also did not fall and, in fact, were about 0.01 ft higher by the end of the pumping period than at the start of pumping. Levels in QAL014A fell about 0.04 ft for a three-hour period early in the test, but subsequently rebounded and remained at the starting level for the last half of pumping. Considering the stability of the levels in other test wells and the climatic data, this response in QAL014A cannot be explained by observed natural phenomena and, therefore, may be equipment or site work activity related. Water levels in the shallow wetland piezometer WLD022 fell

gradually during the pumping period, ending at 0.01 ft below the starting level. This rate of decline was the same as that detected in pre-test monitoring of WLD022 and QAL004A (Figures 3-1 and 3-2).[6]

Groundwater levels were generally stable in most A-zone test wells during the recovery period. Inexplicably, levels fell in QAL014A throughout the whole recovery period and fell about 0.09 feet in QAL011A in the final 7 hours of recovery. These declines occurred while all other A-zone groundwater levels were stable and D-zone levels were rising. These data cannot be attributed to a connection between the A and D zones, but may be equipment or site work activity related.

Several factors support a conclusion that limited hydraulic communication occurs between the A and D zones in the tested area. They are as follows:

- Groundwater level changes in A-zone wells do not correlate with the substantial reduction of the potentiometric head at production well QAL011D during the D-zone test.
- Analysis of drawdown data from the D-zone pumping test indicate that the D-zone is a confined aquifer because 1) the slopes of the drawdown plots do not flatten with time indicating that leakage from above is not occurring, and 2) values of storage coefficient are consistent with typical values for a confined aquifer and not a semi-confined or leaky aquifer.
- The combined thickness of the B and C zones in the test area ranges from 61 feet at QAL011D to 87 feet at QAL004D.
- Laboratory permeability tests and field specific capacity tests of B- and C-zone sediments indicate that their horizontal hydraulic conductivity is quite low; about 0.005 ft/day at QAL004D. Vertical hydraulic conductivity values are probably less than 10 percent of this value.
- A substantial head difference of about 9 feet exists between the A and D zones at well nest QAL004A/D during static conditions.

Based on these data, it is clear that the great thickness of low conductivity sediments severely limits movement of groundwater between the A and D zones and that the D zone acts as a confined aquifer in the test area.

[6] Precipitation during pre-test monitoring was limited and this decline should represent the overall ambient trend during the test.

V. ANALYSIS OF THE A-ZONE PUMPING TEST

Drawdown data from the pumping period were plotted versus time for analysis using the methods of Jacob (Cooper and Jacob, 1946), Theis (Theis, 1935) and Neuman (Neuman, 1975). Delayed drainage of unconfined aquifer sediments during the pumping portion of a constant-rate test can influence early drawdown data, often rendering it unusable by Jacob and Theis methods. For this reason, the Neuman analysis method was also used to analyze the data. This method is only applicable to unconfined aquifers, however, where gravity drainage of aquifer materials influences the drawdown data. Drawdown from the pumping period was also plotted versus distance for analysis using Jacob techniques. Residual drawdown from the recovery period drawdown was plotted versus the t/t'.

D-zone groundwater levels measured in test wells QAL012D, QAL013D, QAL014D, and QAL004D generally rose about 0.2 feet during the pumping period. Fluctuations of about plus and minus 0.4 feet were apparent from the QAL011D data. These data, however, appear unrelated to A-zone pumping and are probably related to site work equipment operation. A-zone groundwater levels, as represented by data from the wetland piezometer WLD022, remained stable throughout the test.

Barometric pressure rose through the first two days of the pumping period but began to fall during the last day of pumping and through the day-long recovery period. These changes were small, however. Such changes typically result in little or no effect on water levels during small-scale pumping tests in unconfined aquifers, such as the A zone aquifer investigated in this test. This is confirmed by the stability of the background water level measured in WLD022.

Recovery data from unconfined aquifer tests can yield erroneous values for transmissivity and specific yield if the drawdown data from the pumping period were affected by gravity drainage. This condition is apparent in the time-drawdown data from this test. As a result, the recovery data were not analyzed so transmissivity and specific yield values based on those data are not presented for the A zone.

TIME-DRAWDOWN ANALYSES

Both Jacob and Theis methods were used to analyze drawdown data collected over time from the transducers during the A-zone test. All drawdown data were corrected for dewatering effects produced when pumping an unconfined aquifer. The dewatering correction was determined using the standard method developed by Jacob. The corrected drawdown data from the pumping and recovery periods were then analyzed using the

Jacob method (Figures 5-1 through 5-4) and the Theis method (Figures 5-5 through 5-8). Drawdown data from production well QAL011A were also corrected for well efficiency before plotting in the Theis analysis.[7] Match points determined in the Theis analyses are shown in Table 2.

The Jacob and Theis plots clearly show that early drawdown data deviate from the standard conditions assumed in these methods. This deviation occurs because the early data are affected by the slow drainage of the A-zone sediments by gravity. Once the sediments have drained, these two methods can be utilized to analyze the later drawdown data.

To overcome the limitations of the Jacob and Theis methods, the Neuman method was also used to evaluate the data. The Neuman method requires matching a type curve to drawdown data plotted versus time. The data plots and type curves are shown in Figures 5-9 through 5-11. An additional benefit of using the Neuman analysis is that it provides a means for calculating an anisotropy ratio.[8] The vertical hydraulic conductivity of the aquifer material can then be calculated from this ratio and the horizontal conductivity.

Hydraulic parameters for the A-zone calculated from the Jacob, Theis and Neuman methods are presented in Table 3. Generally, these time-drawdown methods produce similar results for transmissivity and storage coefficient at each well in areally homogeneous aquifers. The transmissivities calculated for this test, however, increase from well to well toward the southwest (well QAL014A is the most southwesterly well of those included in Table 2). Transmissivities range from 7,700 gpd/ft at QAL011A to 12,400 gpd/ft at QAL014A. Specific yield values average 0.049. The average anisotropy ratio determined by the Neuman method for the three observation wells is 0.036. Thus, the vertical hydraulic conductivity is less than 4 percent of the horizontal hydraulic conductivity.

DISTANCE-DRAWDOWN ANALYSIS

Drawdown data from all test wells collected at 4295 minutes after the start of pumping were plotted against distance and analyzed by the Jacob method (Figure 5-12). Data used for this analysis are shown below:

[7] Well efficiency was estimated to be about 40 percent based on analysis of time-drawdown and distance-drawdown data.

[8] The anisotropy ratio is the ratio of vertical to horizontal hydraulic conductivity.

Well Name	Distance from Pumped Well QAL011A (feet)	Drawdown at 120 Minutes
QAL012A	30.5	0.948
QAL013A	67.2	0.624
QAL014A	143	0.291

The transmissivity of about 6,800 gpd/ft calculated from this analysis is lower than all values from time-drawdown analyses (7,700 to 12,400 gpd/ft). This deviation occurs because the Jacob method is based on the assumption that the aquifer is areally homogeneous.[9] As observed from the time-drawdown data, the aquifer transmissivity increases substantially toward the southwest away from the production well (toward the wetland complex). This results in less drawdown at greater distance than would occur if the transmissivity at the more distant locations matched the value at the production well. The lower-than-expected drawdown at distance produces a steeper distance drawdown plot that results in a lower calculated transmissivity value.

Essentially this condition is a 'positive' boundary that should appear as a flattening of the slope on the time-drawdown graph for each well in this test. But the positive-boundary effect occurs early in the test and, therefore, is obscured by gravity drainage effects. As a result, it is possible that the transmissivity values calculated from the affected time-drawdown data could be somewhat overstated for the area immediately around each well (especially those nearest the center of pumping—most likely QAL011A and QAL012A). The values determined at all wells, however, do provide a valid representation of the conditions over a more broad area.

Hydraulic Conductivity of A-Zone Sediments

Hydraulic conductivity values were calculated by dividing the average transmissivity at each test well by the saturated thickness of the A-zone. The A-zone thickness shown in Table 2 is based on groundwater levels and well log data. Average conductivity values for this unit ranged from 44 to 61 ft/day with a substantially higher calculated value at the most southwesterly well (QAL014A).

[9] This assumption is also made in the Theis distance-drawdown method, so results from this method are also questionable.

VI. CONCLUSIONS

Data collected during the pumping tests that were conducted on the Yellow Dog Plains helped provide an accurate characterization of hydraulic conditions in the A and D zones. The tests also provided a qualitative understanding of the hydraulic connection between these two zones and the nature of the low conductivity sediments between them (the B and C zones). The following conclusions about the local groundwater system can be drawn from the testing:

- The average D-zone transmissivity is about 6,100 gpd/ft and is generally consistent in most of the test area. The transmissivity may be lower, however, to the north and northeast and south-southeast toward the bedrock outcrop as a result of D-zone discontinuity.
- The average horizontal hydraulic conductivity of the D zone in the test area is 40 ft/day.
- The average storage coefficient for the D zone in the test area is 1.7E-4.
- The A-zone transmissivity increases from northeast to southwest in the test area, ranging from about 7,700 gpd/ft to 12,400 gpd/ft. Because the saturated thickness of the aquifer is similar along the test array, the areal increase in transmissivity results from higher hydraulic conductivity of the sediments.
- Horizontal hydraulic conductivities in the A zone in the test area range from 37 to 69 ft/day, with the highest values in the southwest part of the test area; the average value determined from the test is 50 ft/day.
- The average specific yield of the A zone in the test area is 0.049.
- The average anisotropy ratio of A-zone sediments is 0.036.
- The average vertical hydraulic conductivity of the A zone in the test area is 1.9 ft/day.
- The A zone aquifer is unconfined.
- The B and C zones act together as a substantial confining unit, restricting groundwater movement between the A and D zones in the tested area.
- The D zone aquifer is confined.

VII. REFERENCES

Cooper, H. H., Jr. and Jacob, C. E., 1946, A generalized graphical method for evaluating formation constants and summarizing well field history, *Transactions, American Geophysical Union*, Vol. 27, No. 4.

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Neuman, S. P., 1975, Analysis of pumping test data from anisotropic unconfined aquifers concerning delayed gravity response, *Water Resources Research,* Vol. 11, No. 2, pp 329-342.

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Theis, C. V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground water storage, *Transactions, American Geophysical Union*, Washington, D.C., pp 518-524.

FIGURES

Figure 3-1. Pre-Test Water Levels in QAL004A

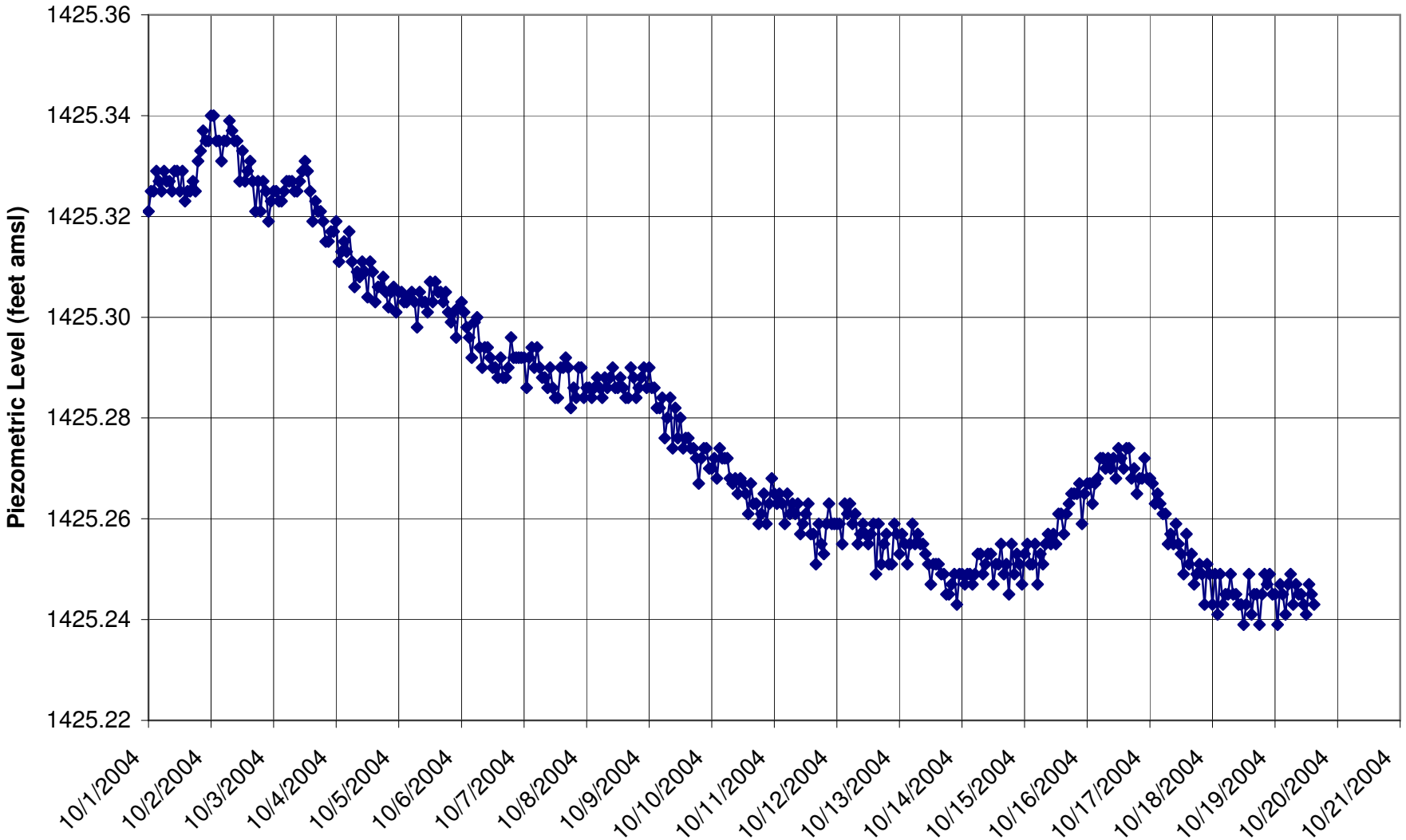


Figure 3-2. Pre-Test Water Levels in QAL004D

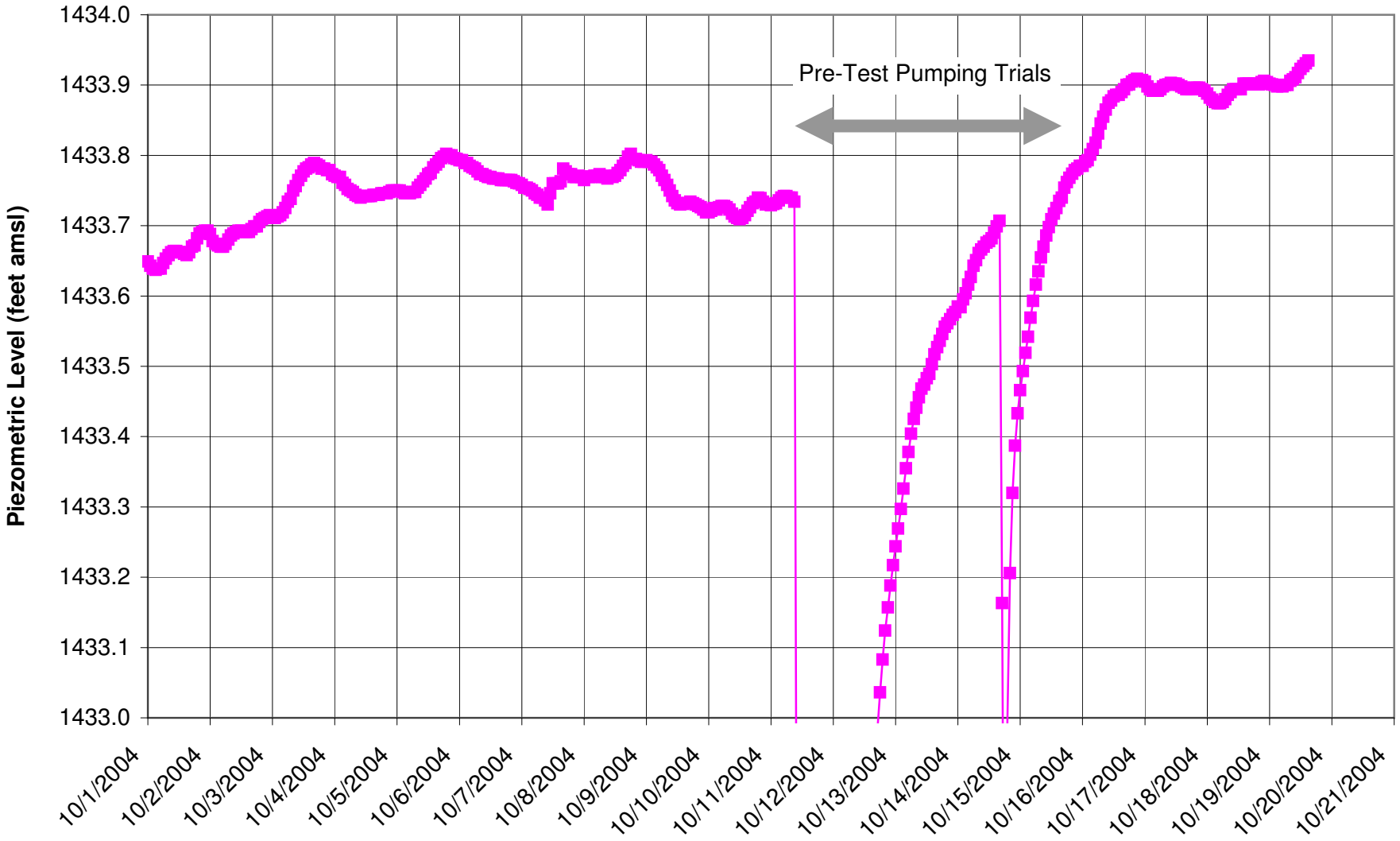


Figure 3-3. Water Levels in Wetland Piezometer WLD022

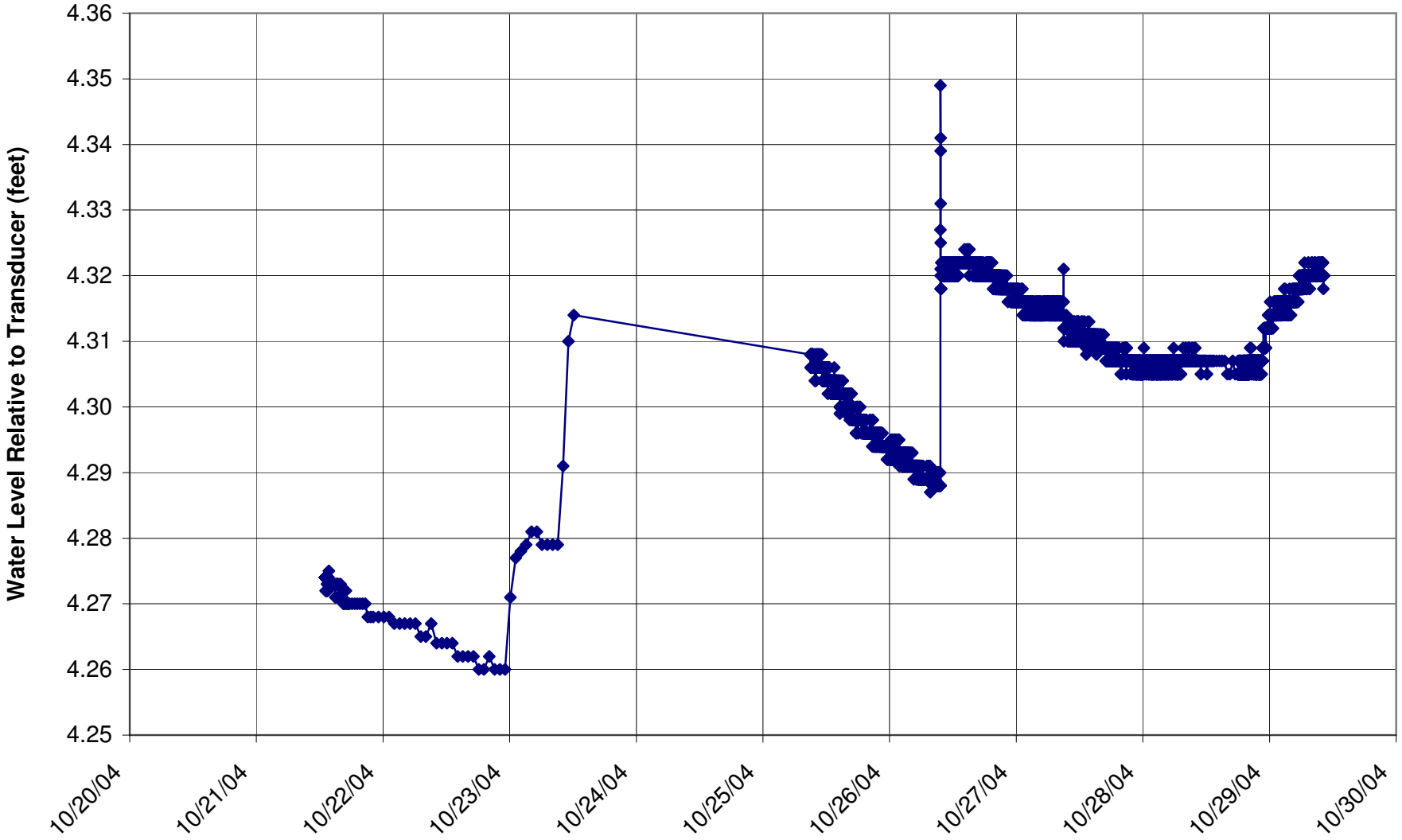


Figure 3-4. Hourly Precipitation at Eagle Project Weather Station, October 2004

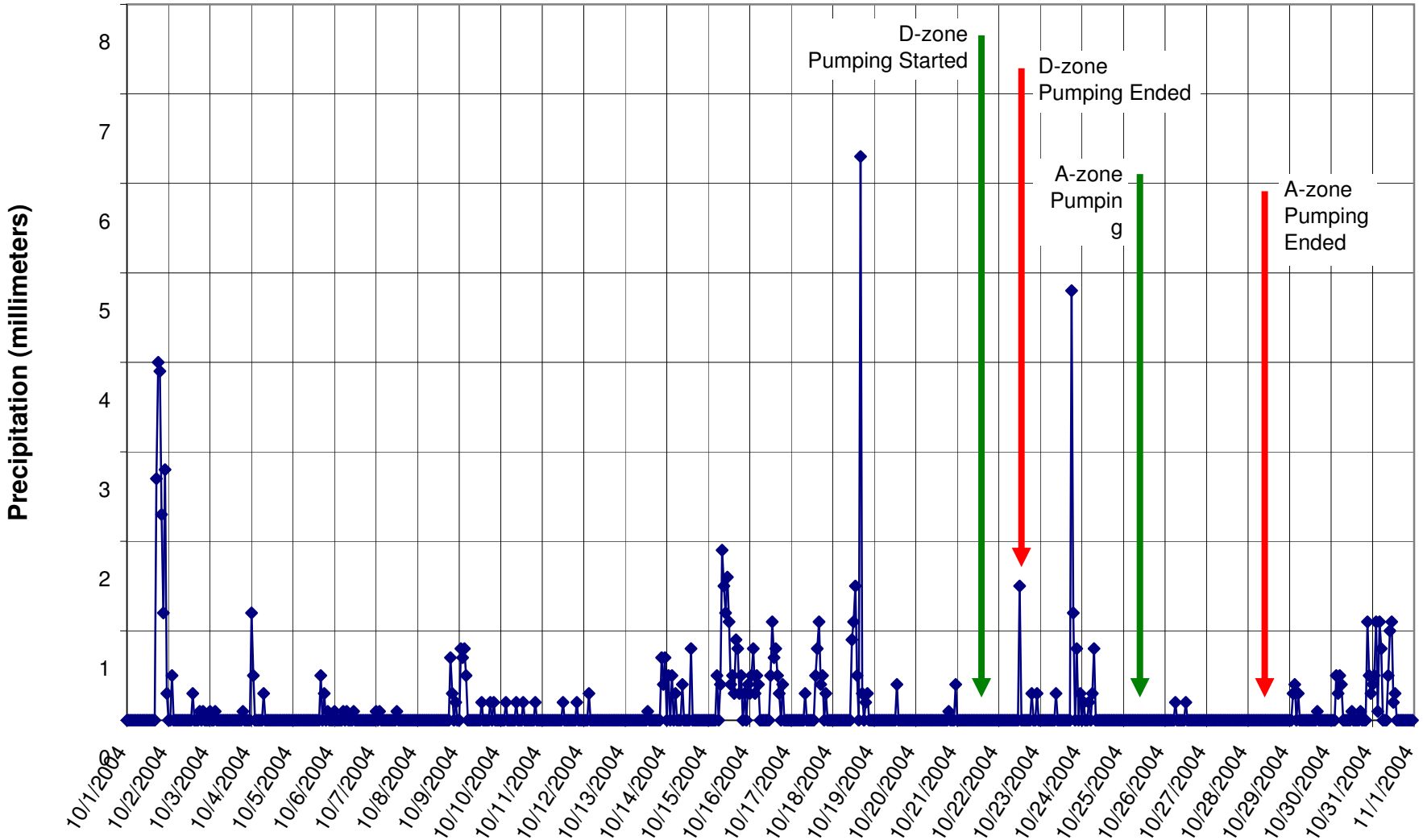


Figure 3-5. Barometric Pressure at Sawyer International Airport, Marquette, MI

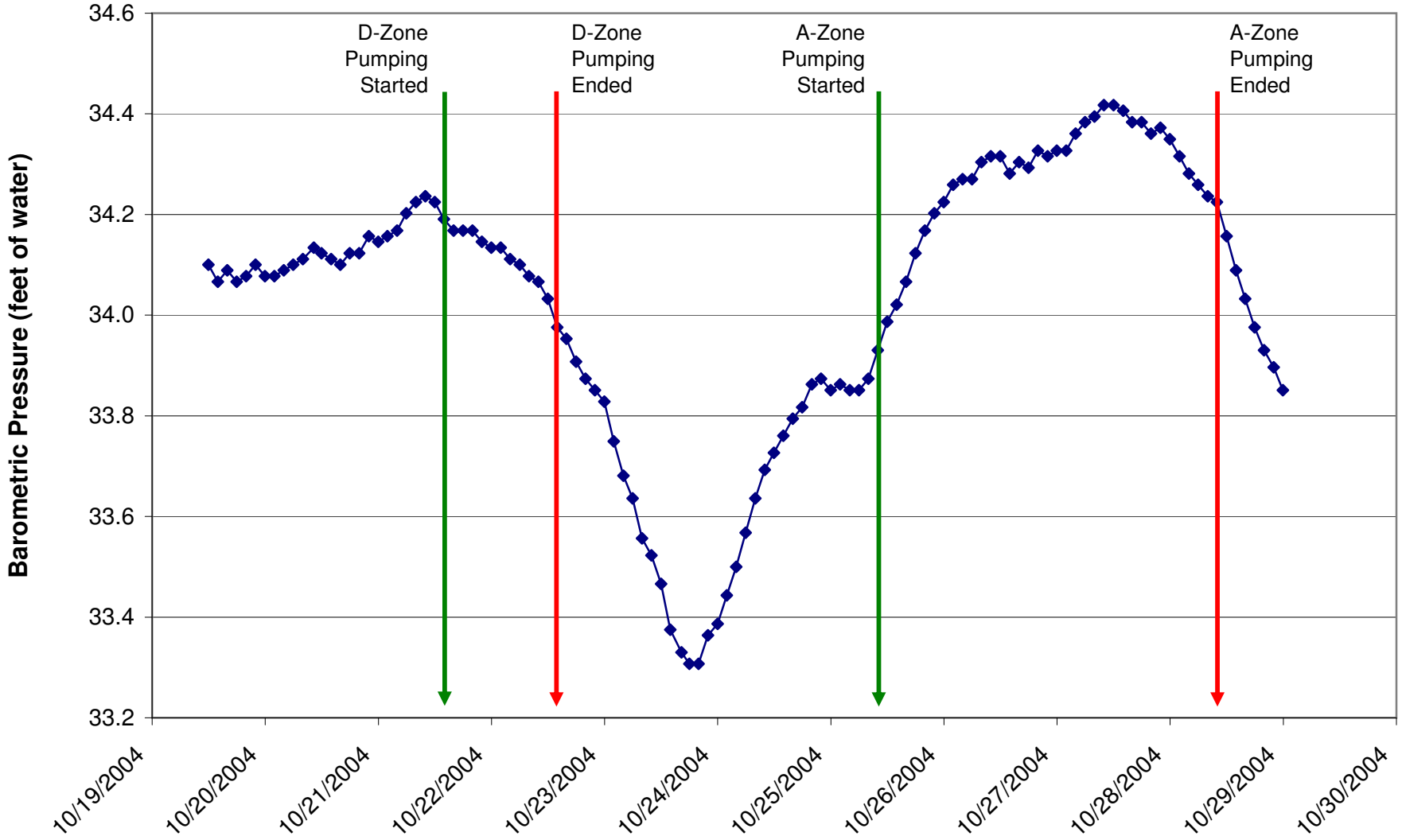


Figure 4-1. D-Zone Test: Time-Drawdown Graph for QAL011D (Jacob)

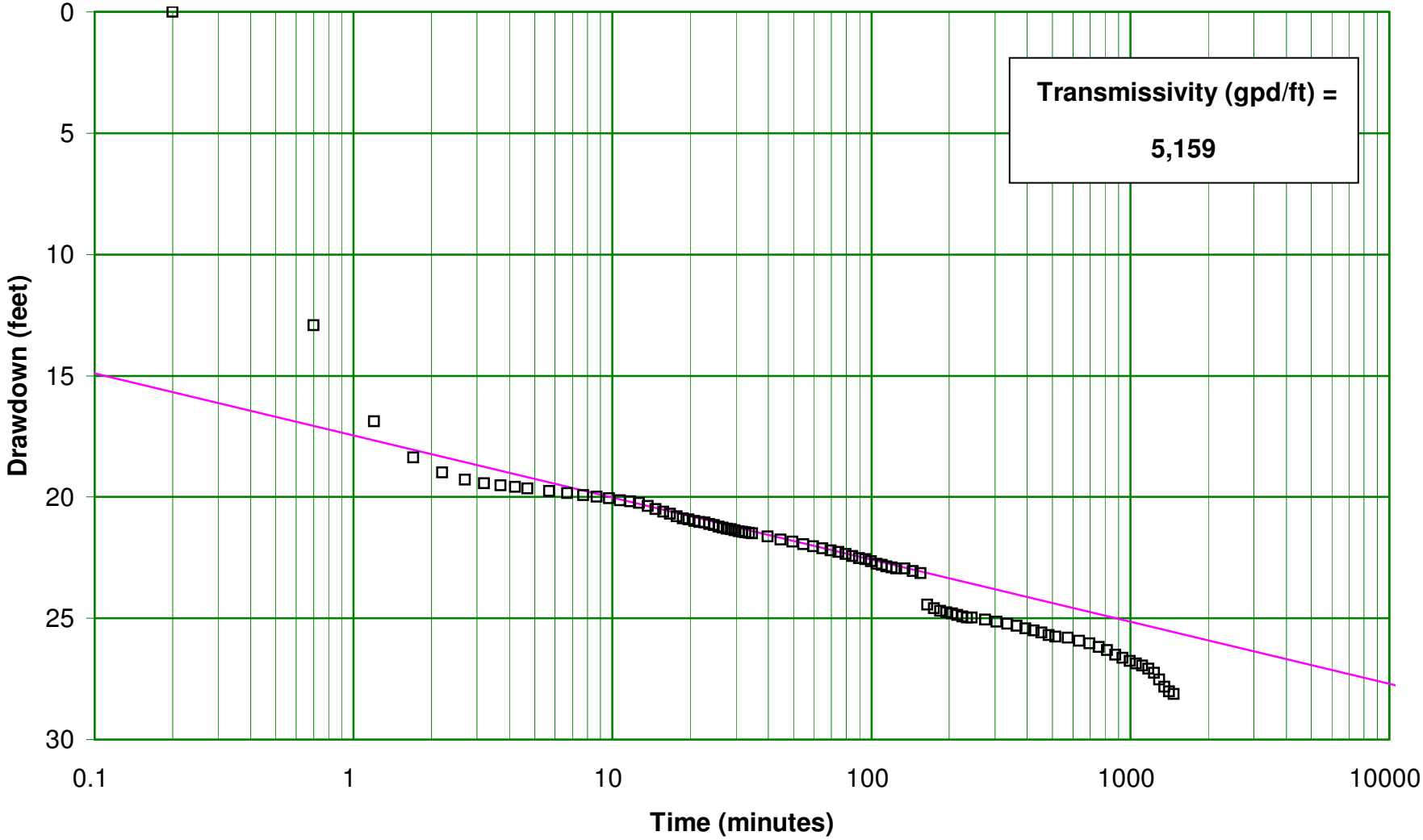


Figure 4-2. D-Zone Test: Time-Drawdown Graph for QAL012D (Jacob)

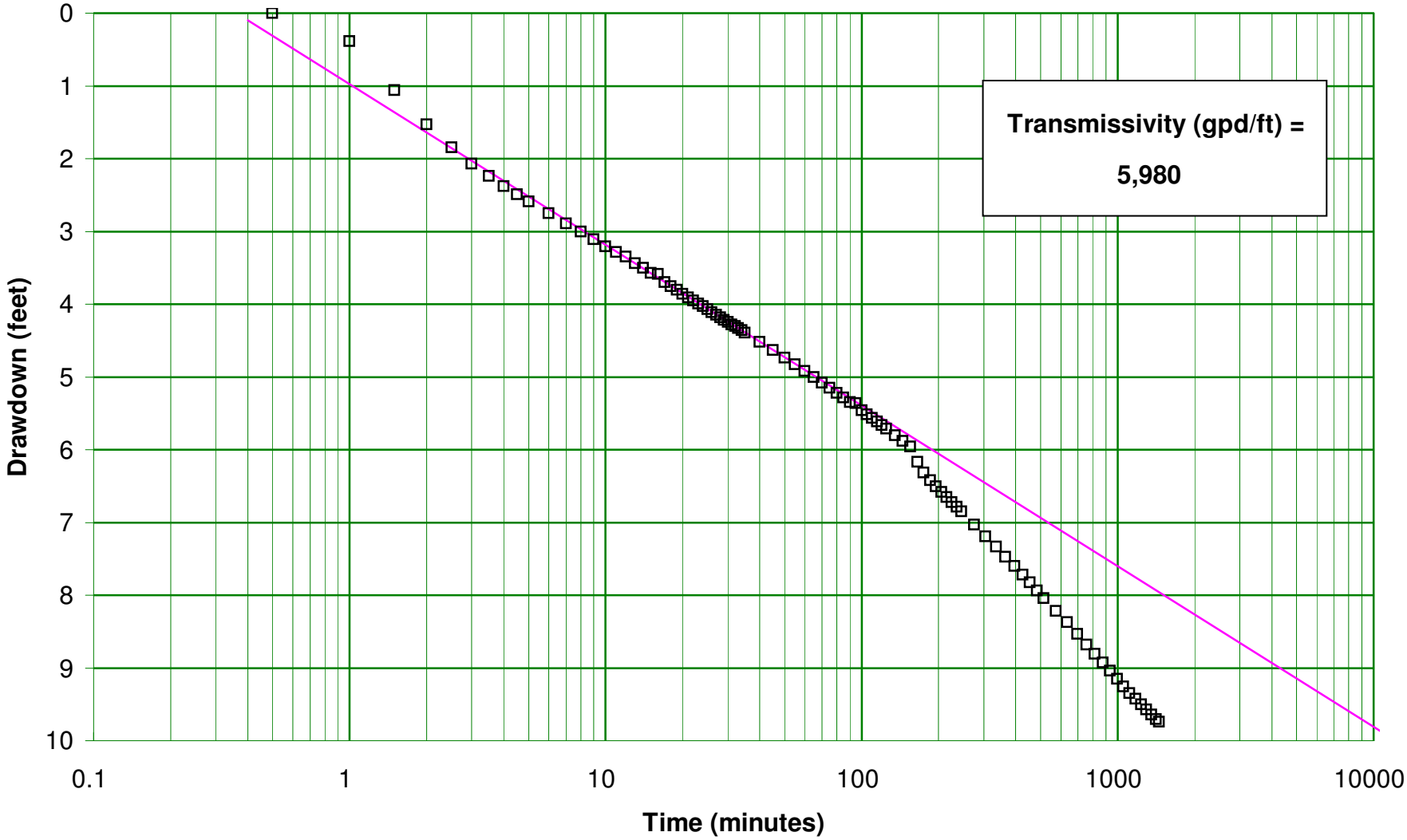


Figure 4-3. D-Zone Test: Time-Drawdown Graph for QAL013D (Jacob)

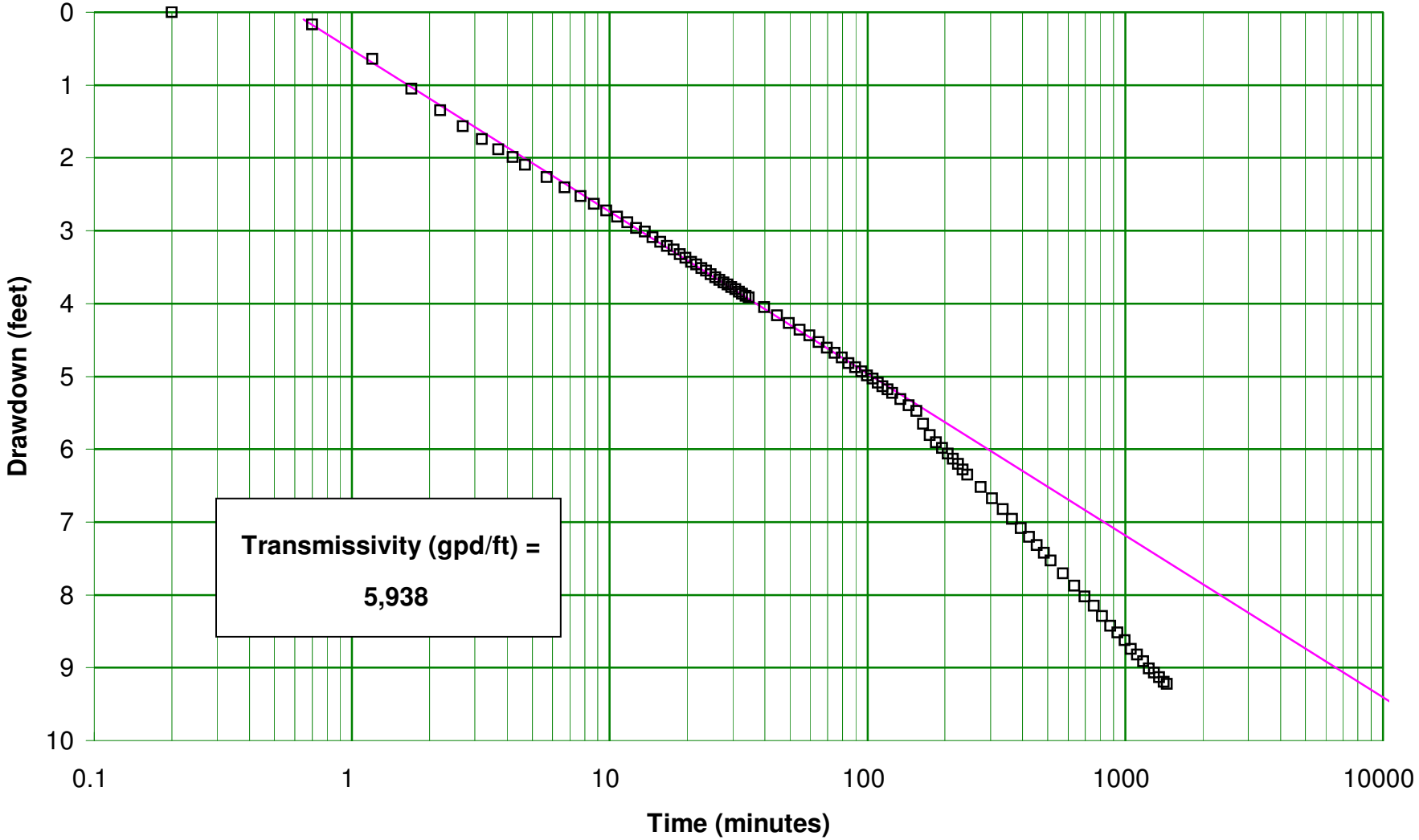


Figure 4-4. D-Zone Test: Time-Drawdown Graph for QAL014D (Jacob)

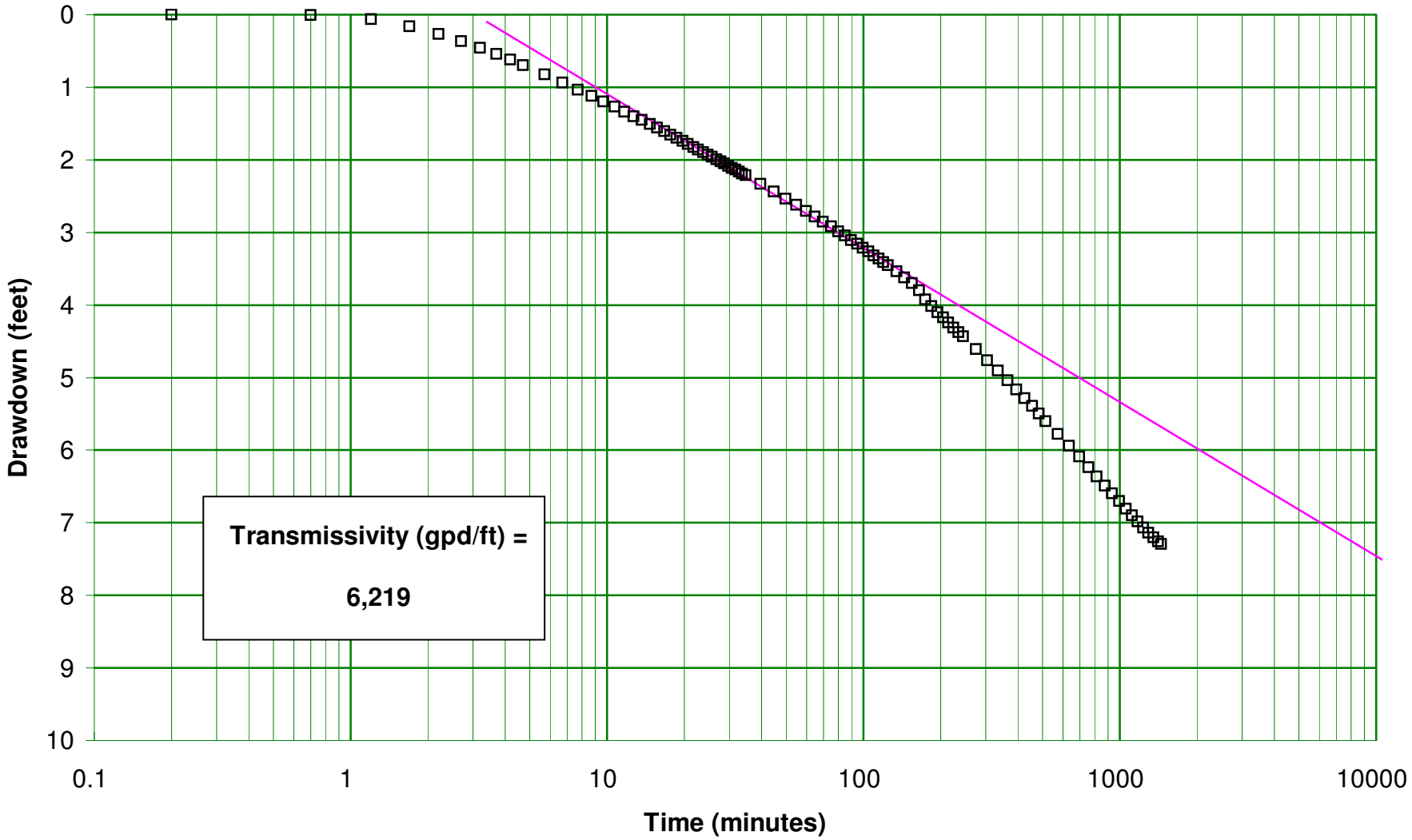


Figure 4-5. D-Zone Test: Time-Drawdown Graph for QAL004D (Jacob)

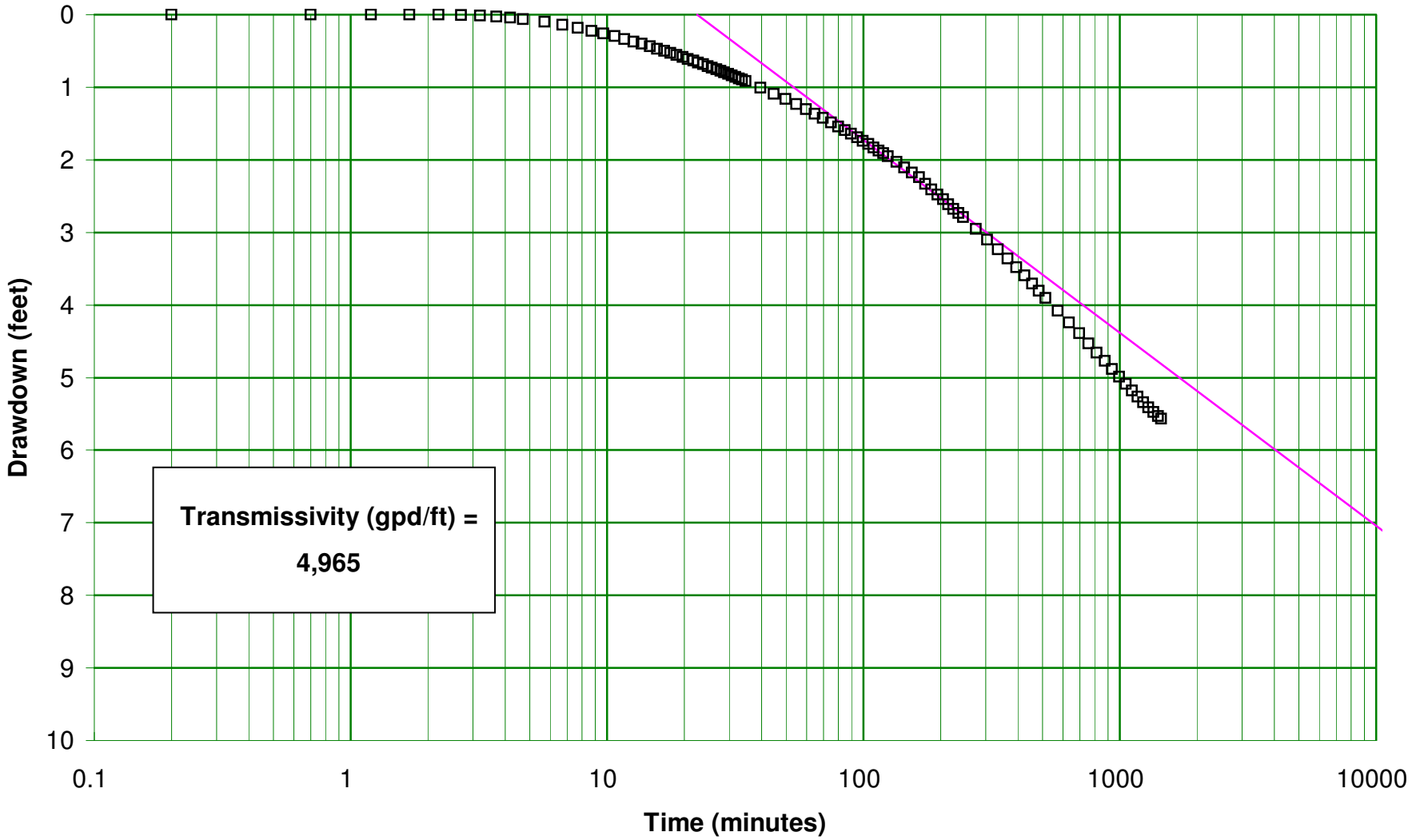


Figure 4-6. D-Zone Test: Time Drawdown Graph for QAL011D (Theis)

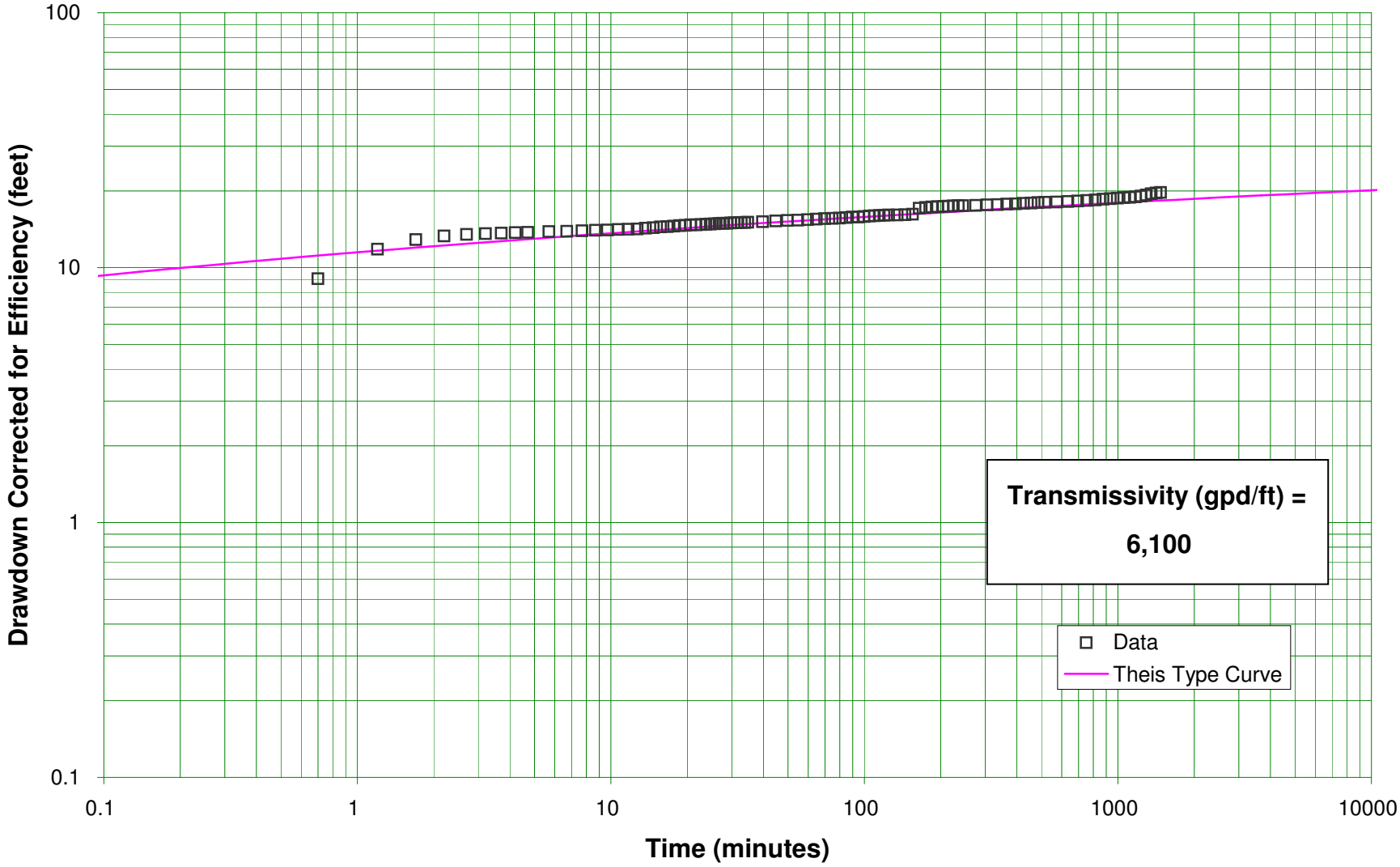


Figure 4-7. D-Zone Test: Time Drawdown Graph for QAL012D (Theis)

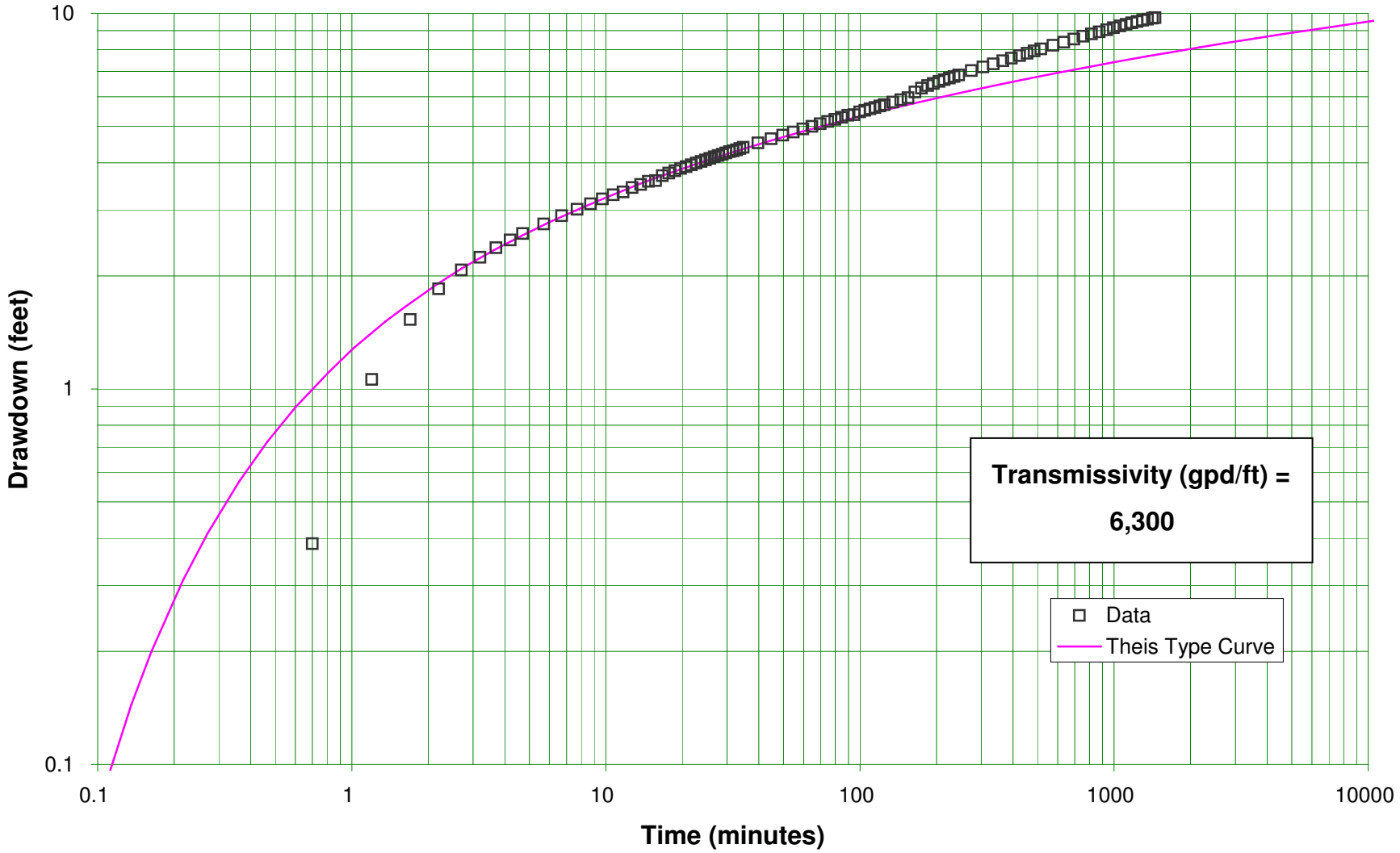


Figure 4-8. D-Zone Test: Time Drawdown Graph for QAL013D (Theis)

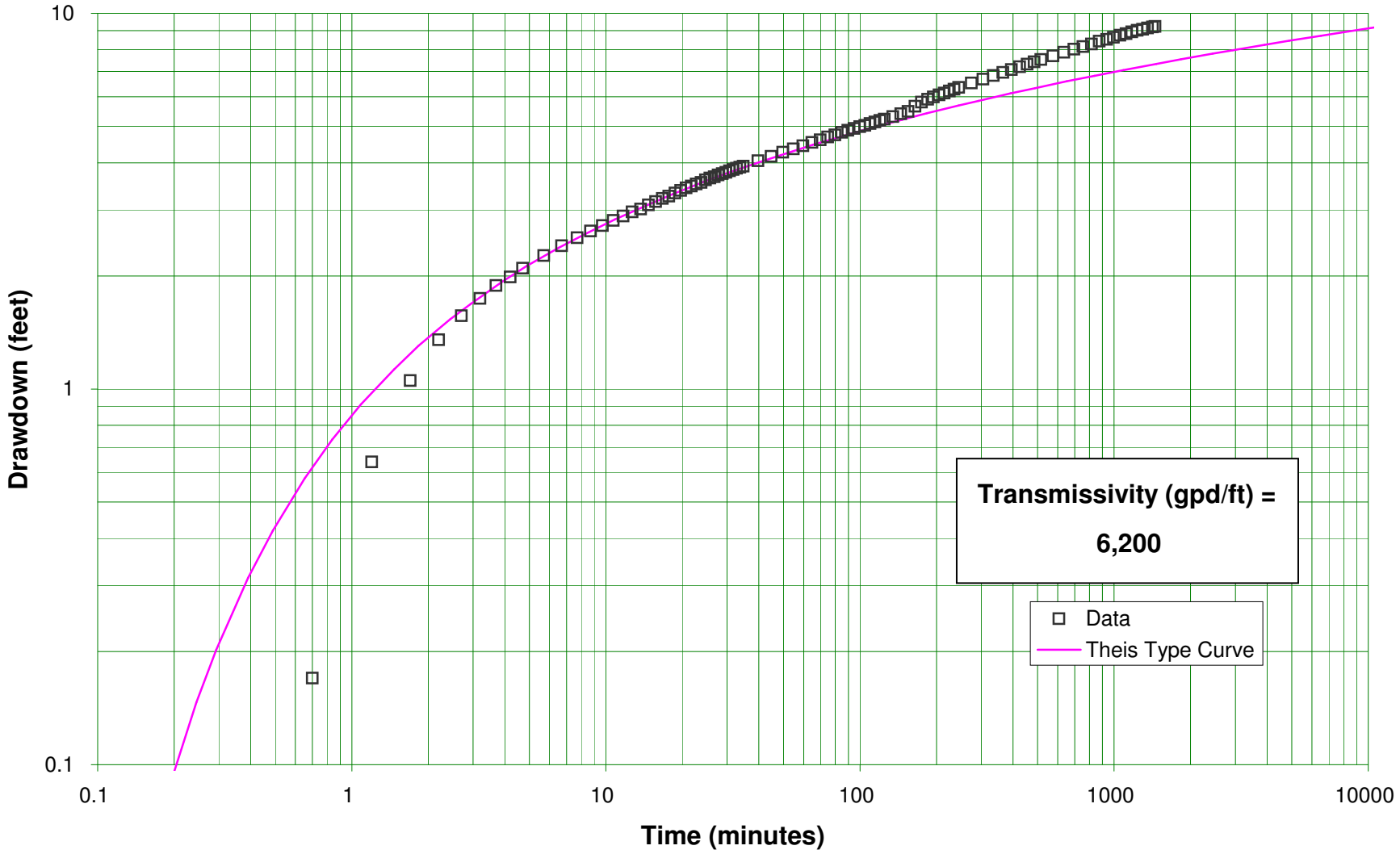


Figure 4-9. D-Zone Test: Time Drawdown Graph for QAL014D (Theis)

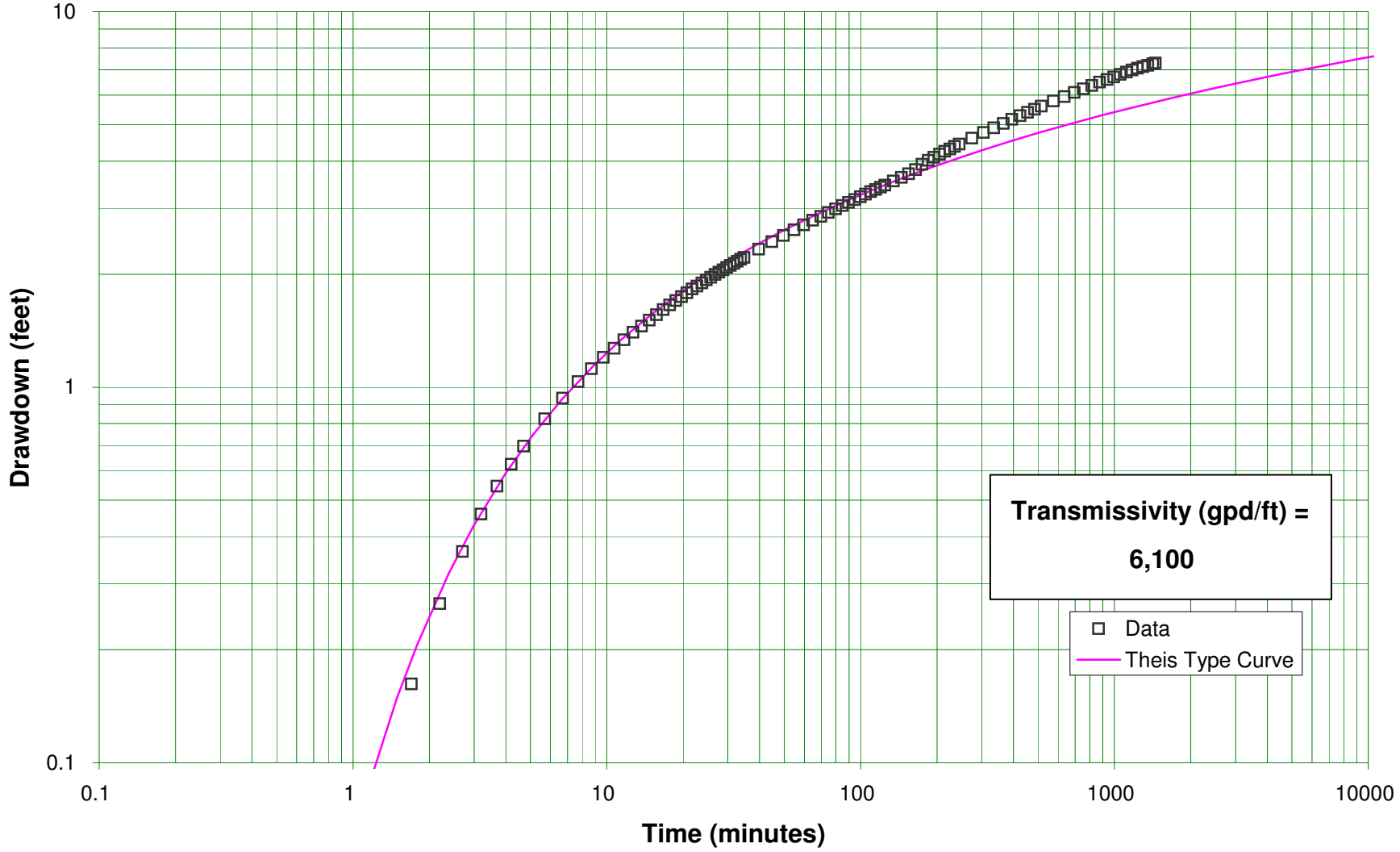


Figure 4-10. D-Zone Test: Time Drawdown Graph for QAL004D (Theis)

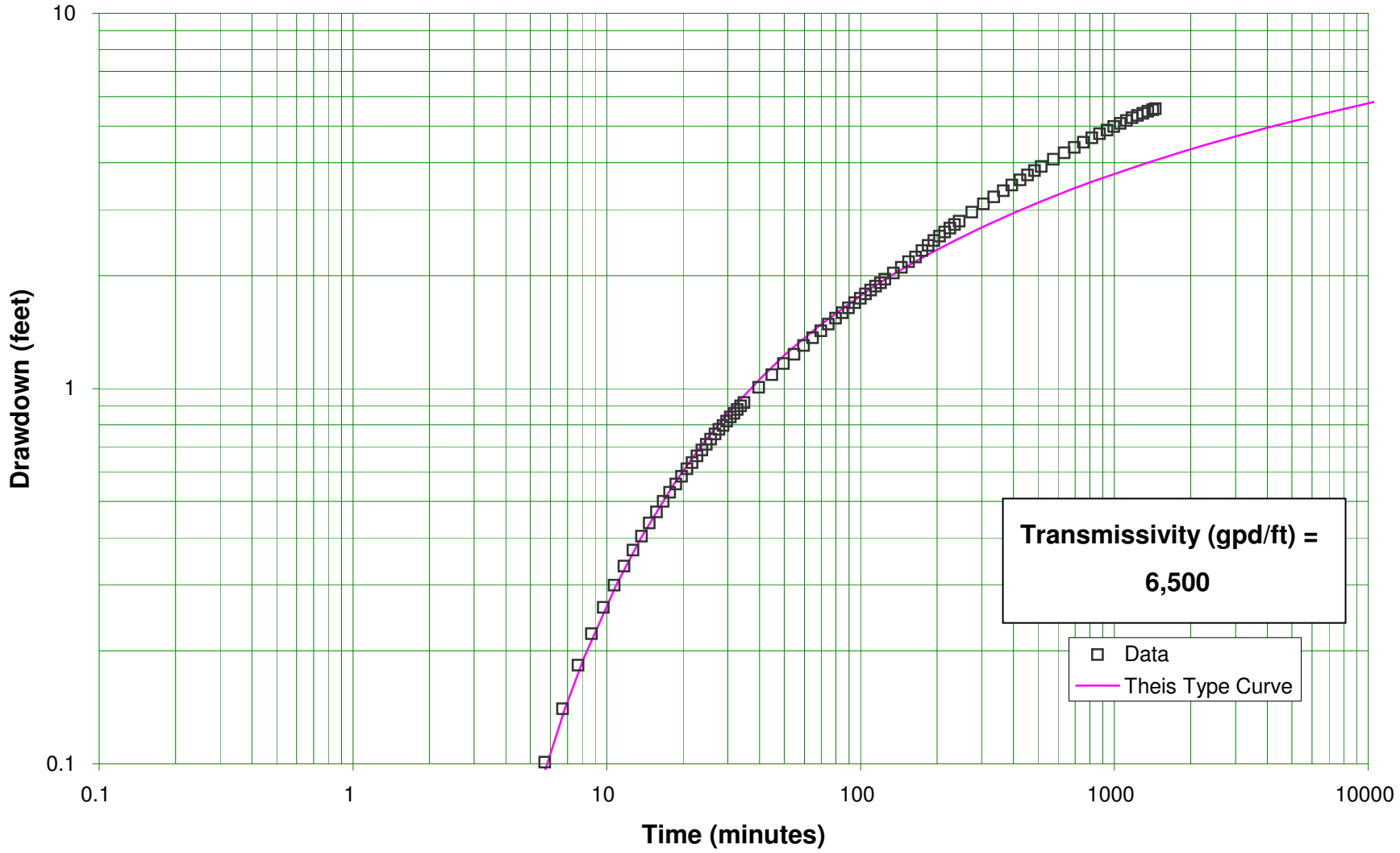


Figure 4-11. D-Zone Test: Distance-Drawdown Graph for 120 Minutes

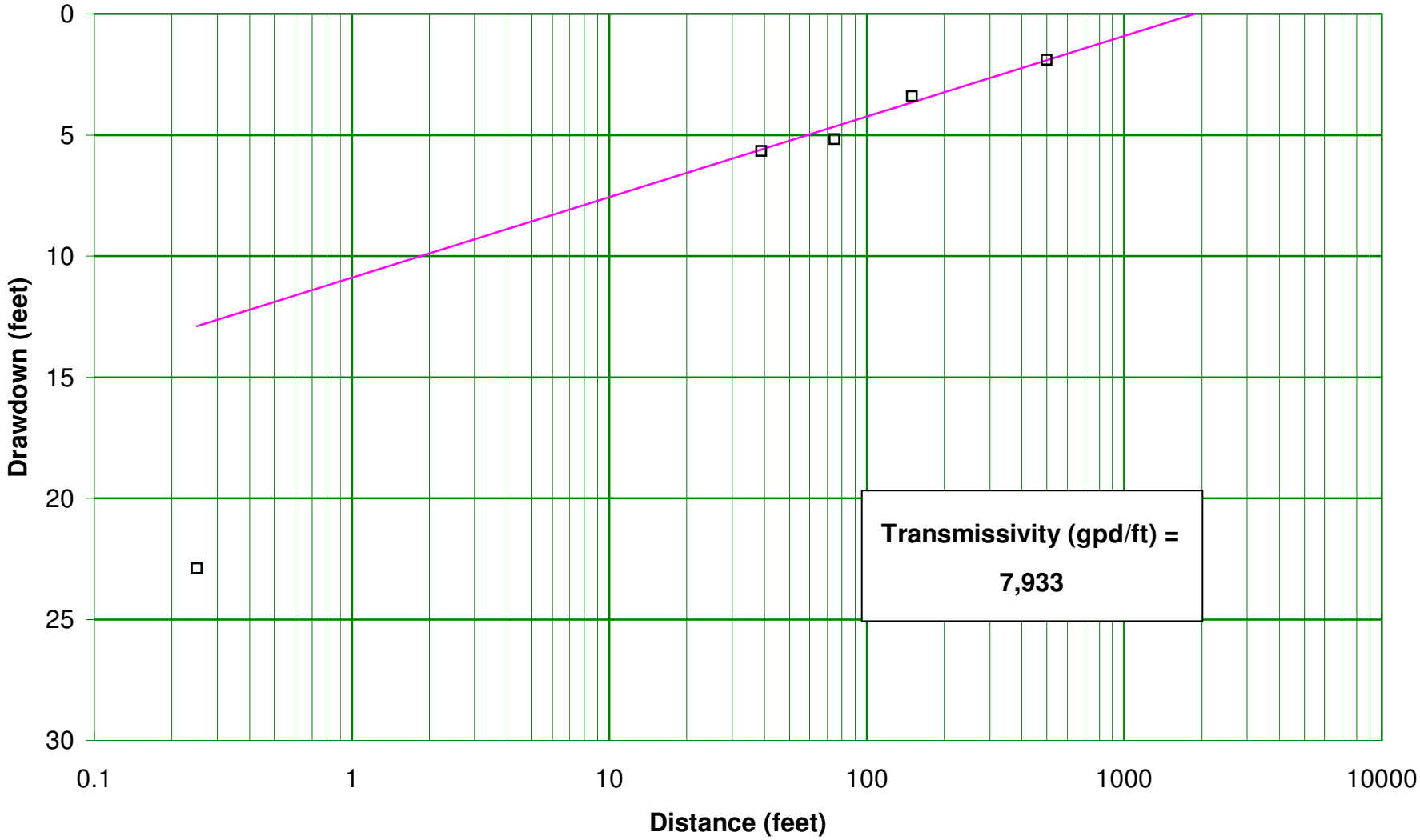


Figure 4-12. D-Zone Test: Recovery Graph for QAL011D

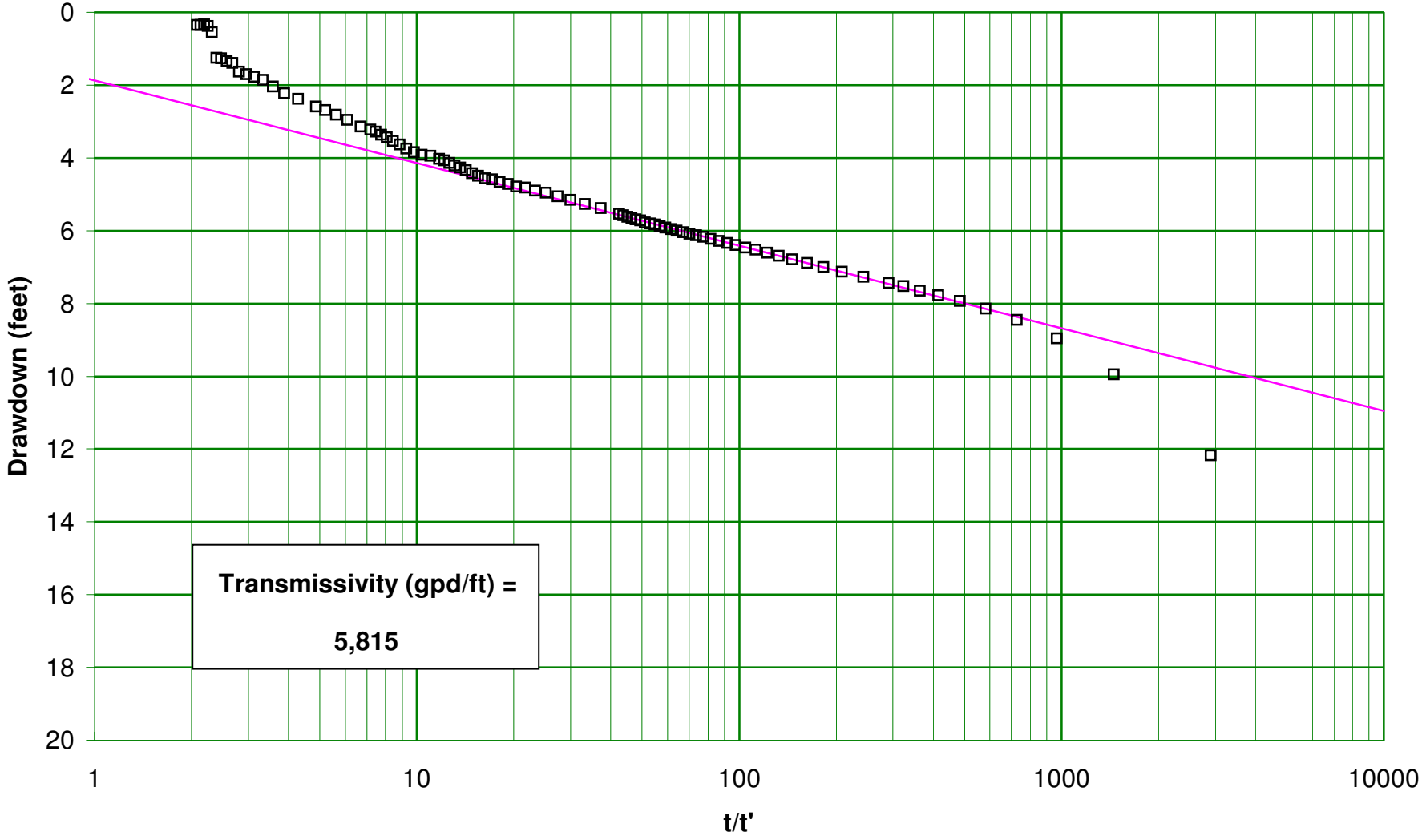


Figure 4-13. D-Zone Test: Recovery Graph for QAL012D

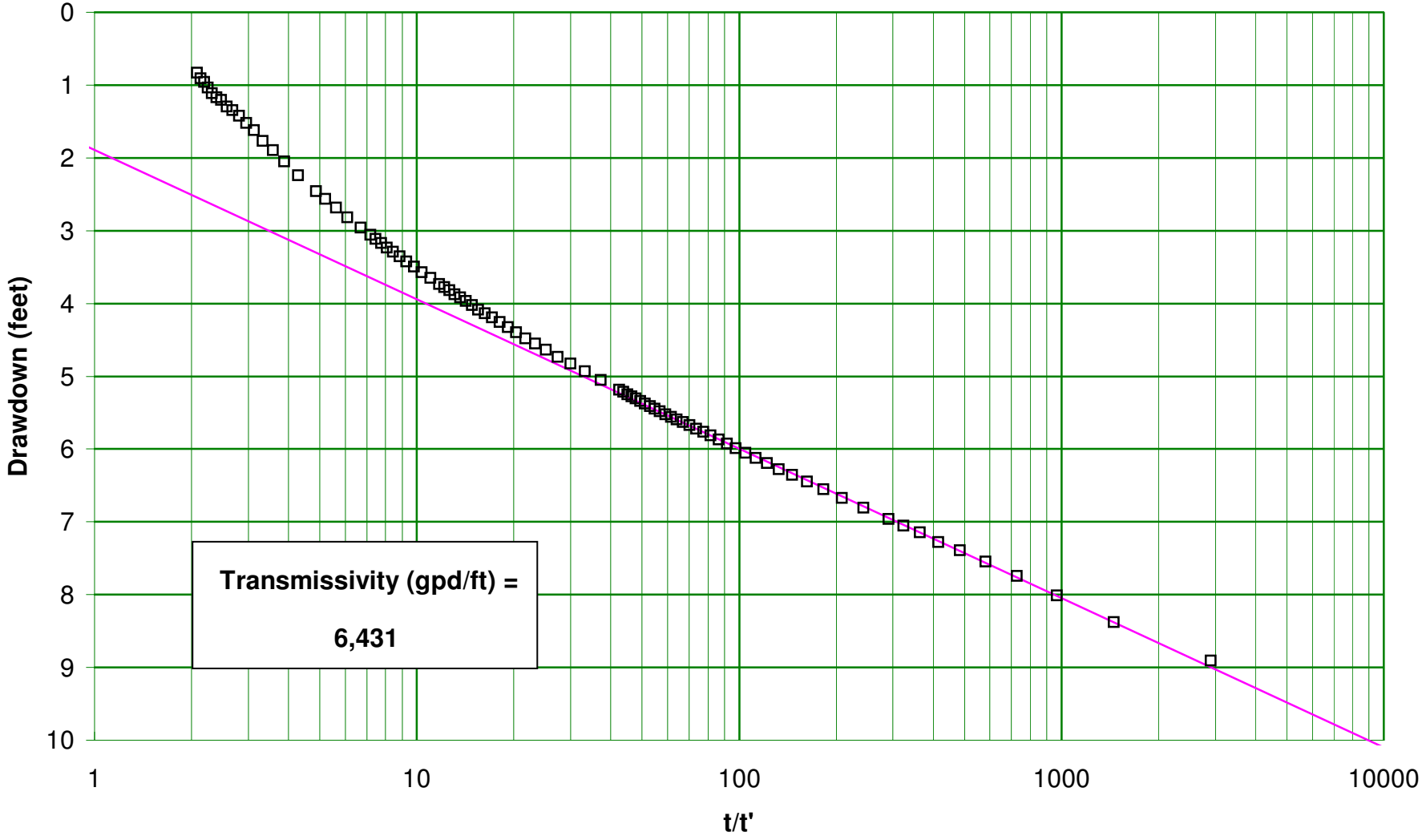


Figure 4-14. D-Zone Test: Recovery Graph for QAL013D

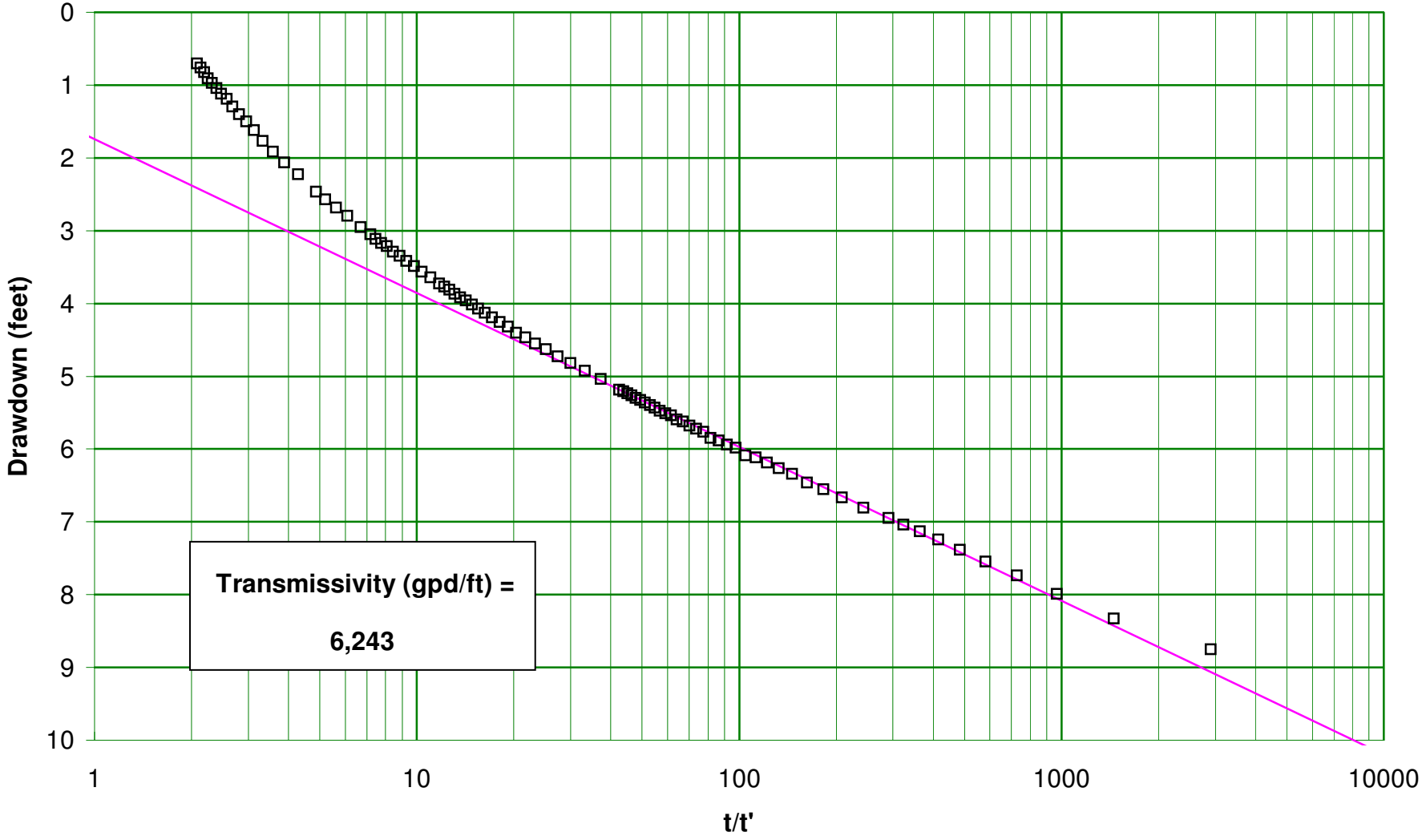


Figure 4-15. D-Zone Test: Recovery Graph for QAL014D

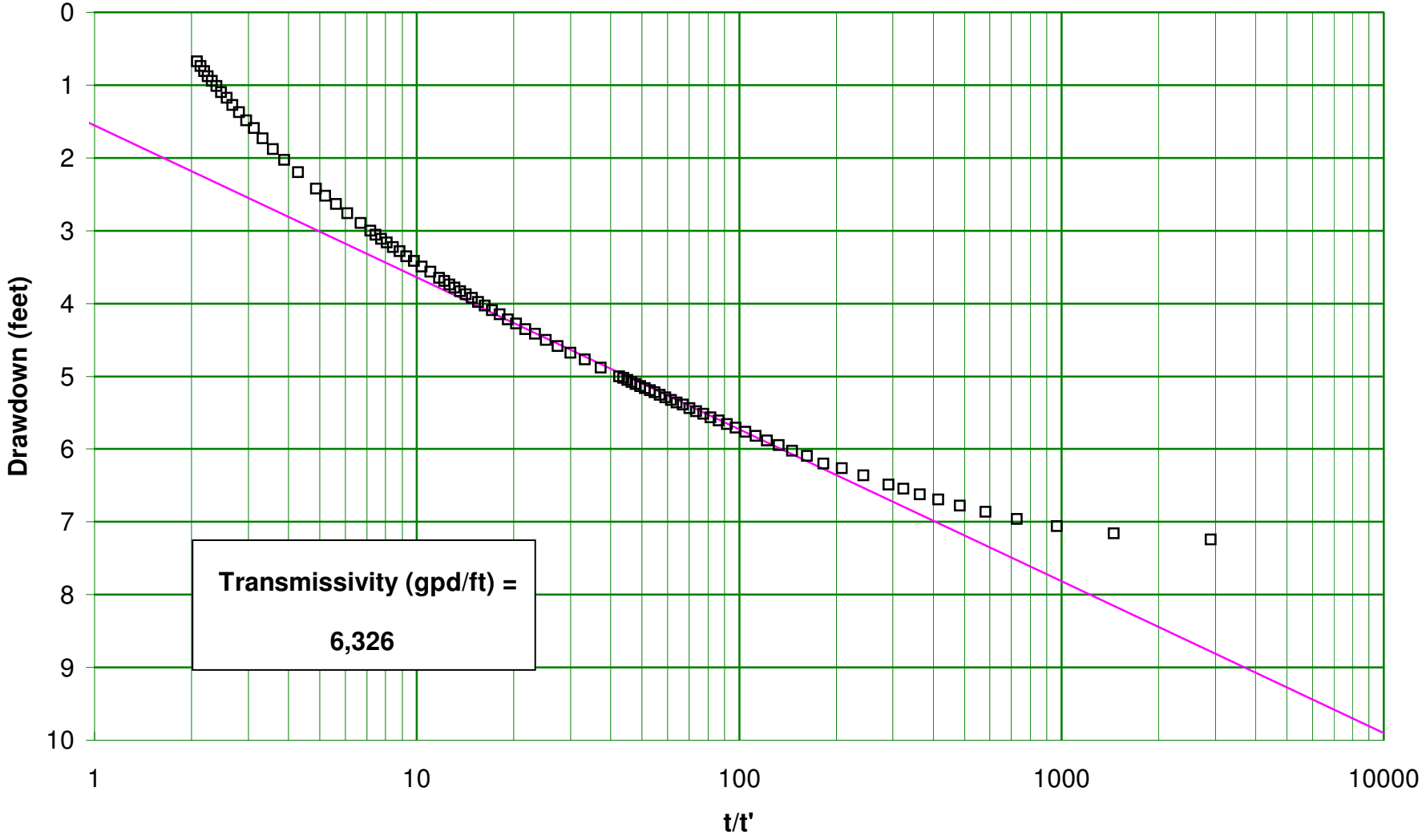


Figure 5-1. A-Zone Test: Time-Drawdown Graph for QAL011A (Jacob)

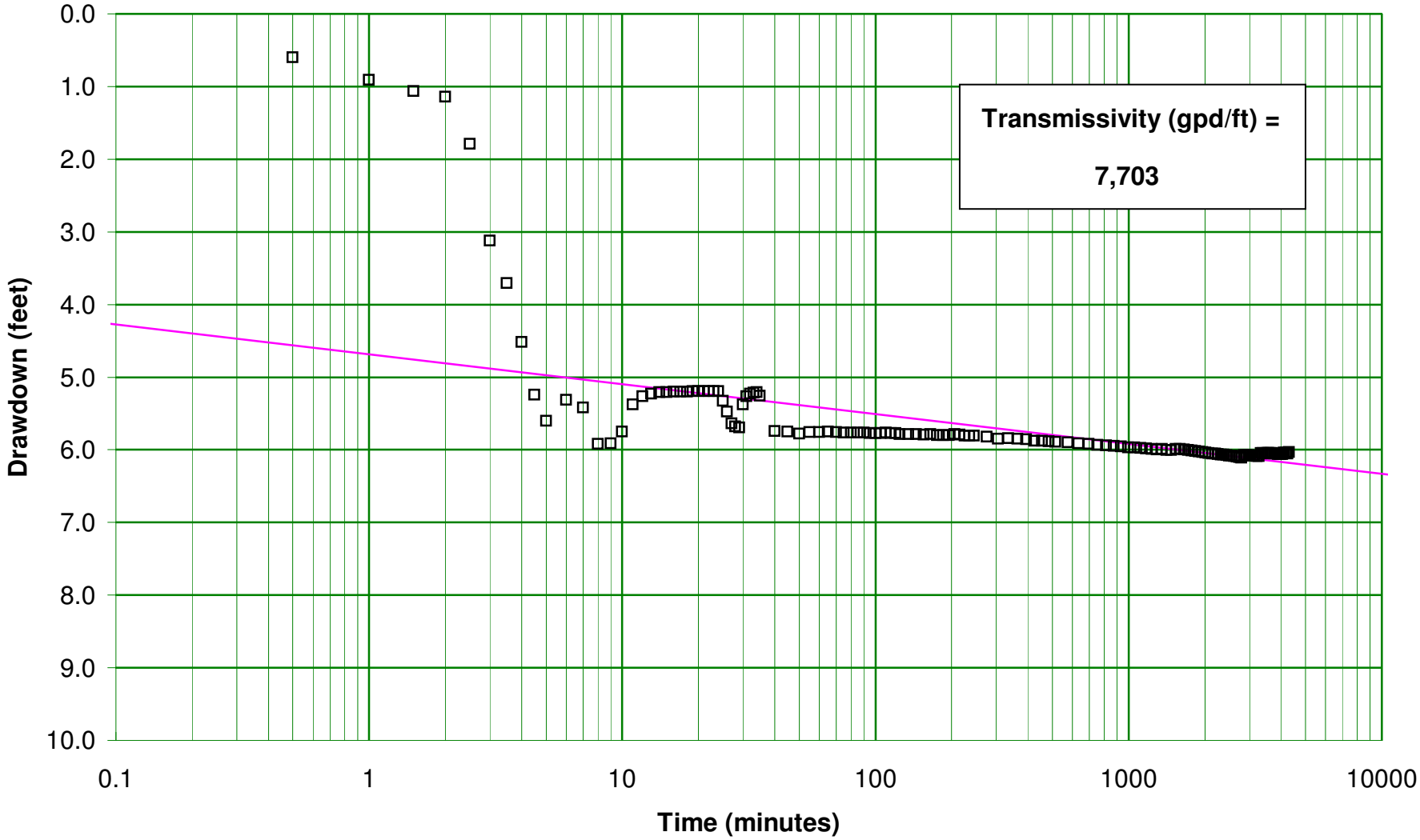


Figure 5-2. A-Zone Test: Time-Drawdown Graph for QAL012A (Jacob)

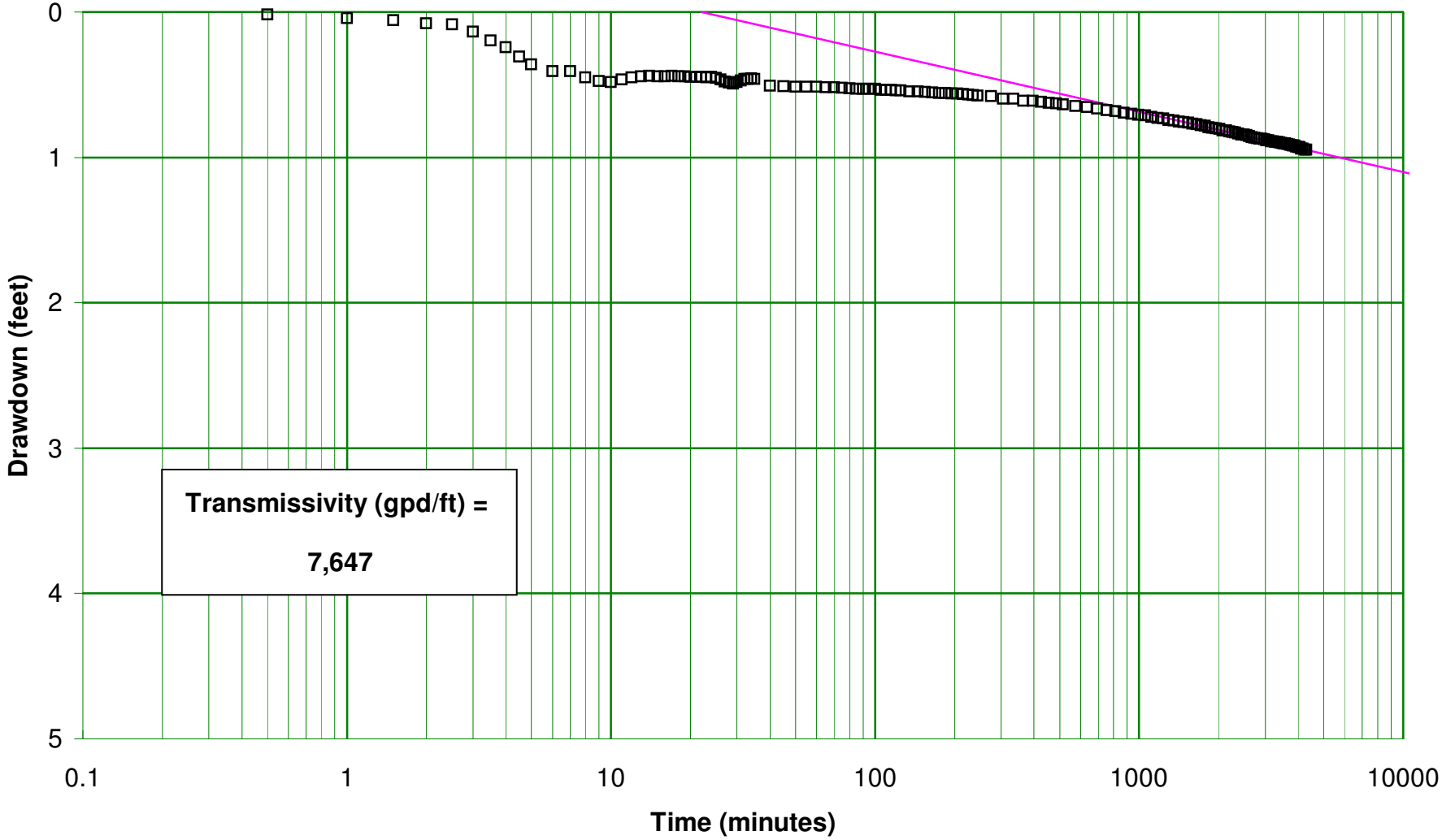


Figure 5-3. A-Zone Test: Time-Drawdown Graph for QAL013A (Jacob)

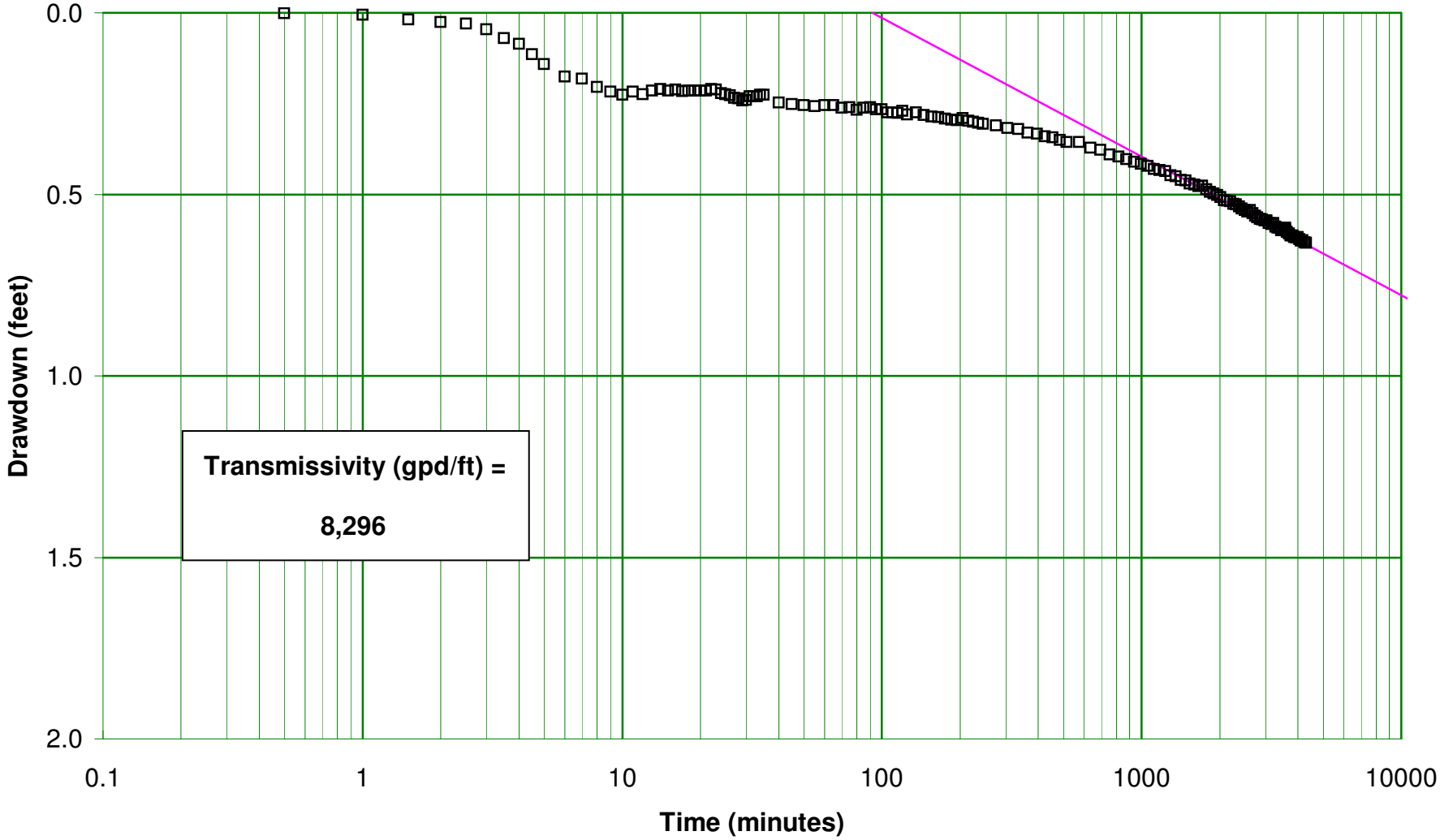


Figure 5-4. A-Zone Test: Time-Drawdown Graph for QAL014A (Jacob)

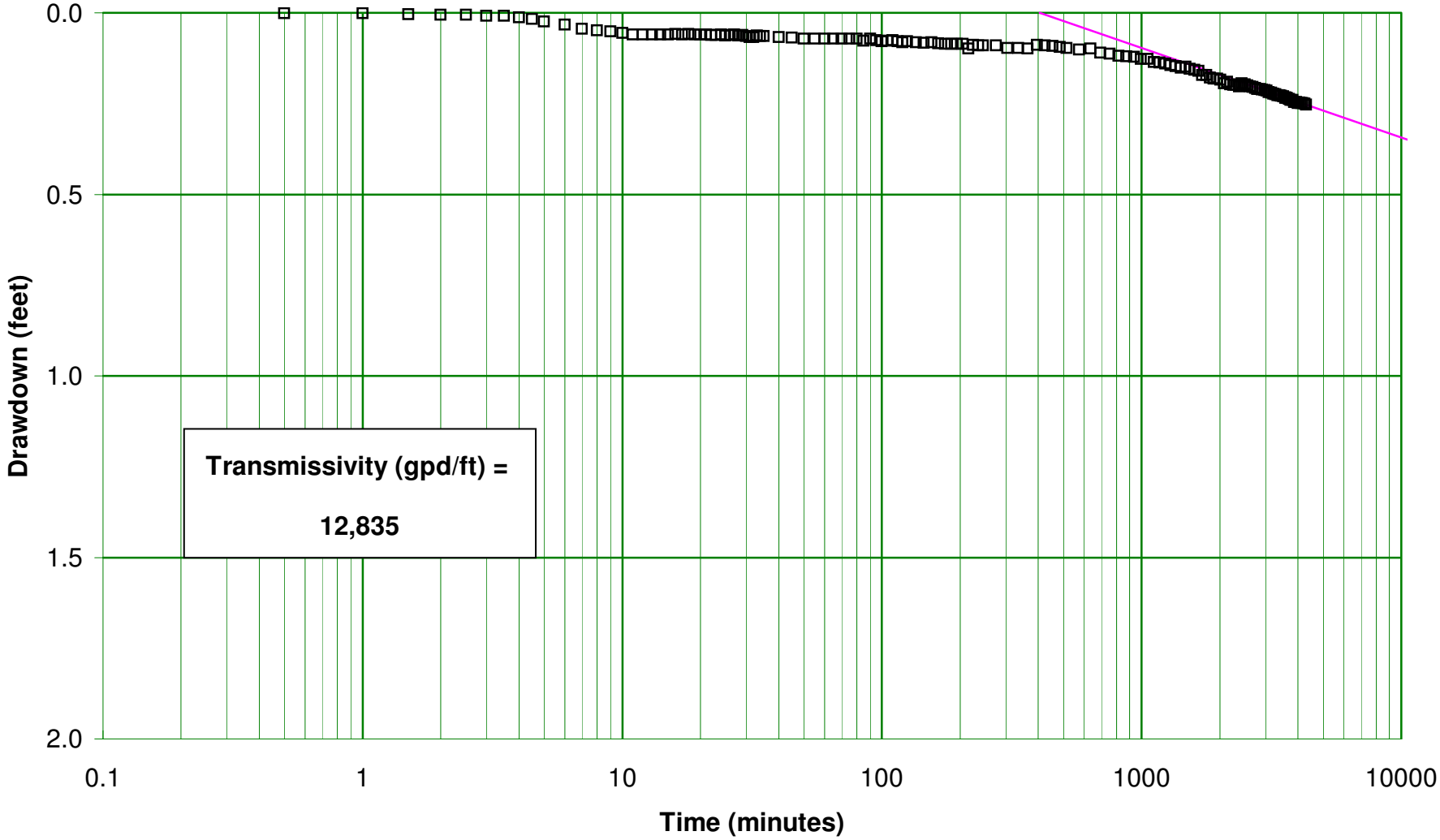


Figure 5-5. A-Zone Test: Time Drawdown Graph for QAL011A (Theis)

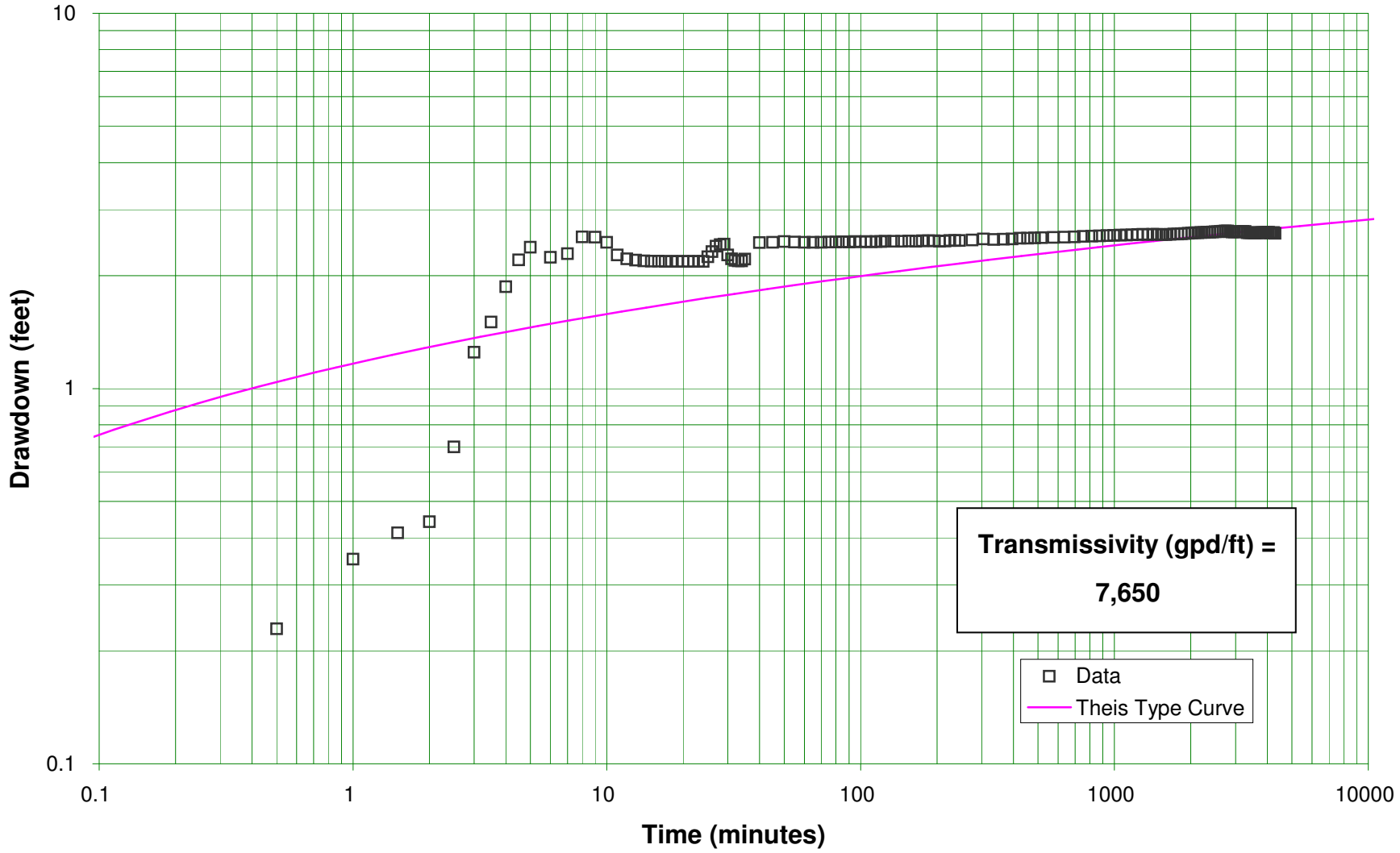


Figure 5-6. A-Zone Test: Time Drawdown Graph for QAL012A (Theis)

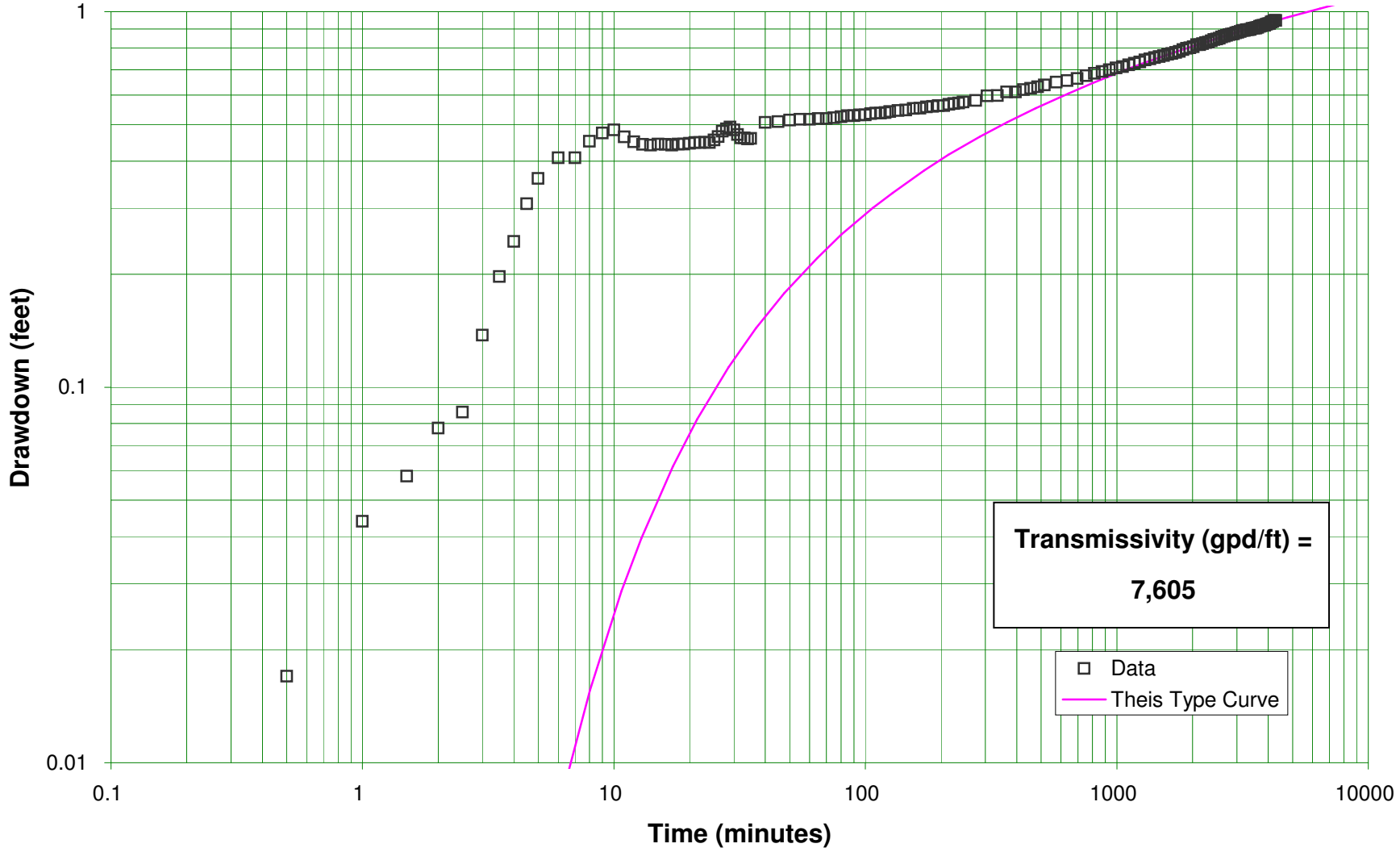


Figure 5-7. A-Zone Test: Time Drawdown Graph for QAL013A (Theis)

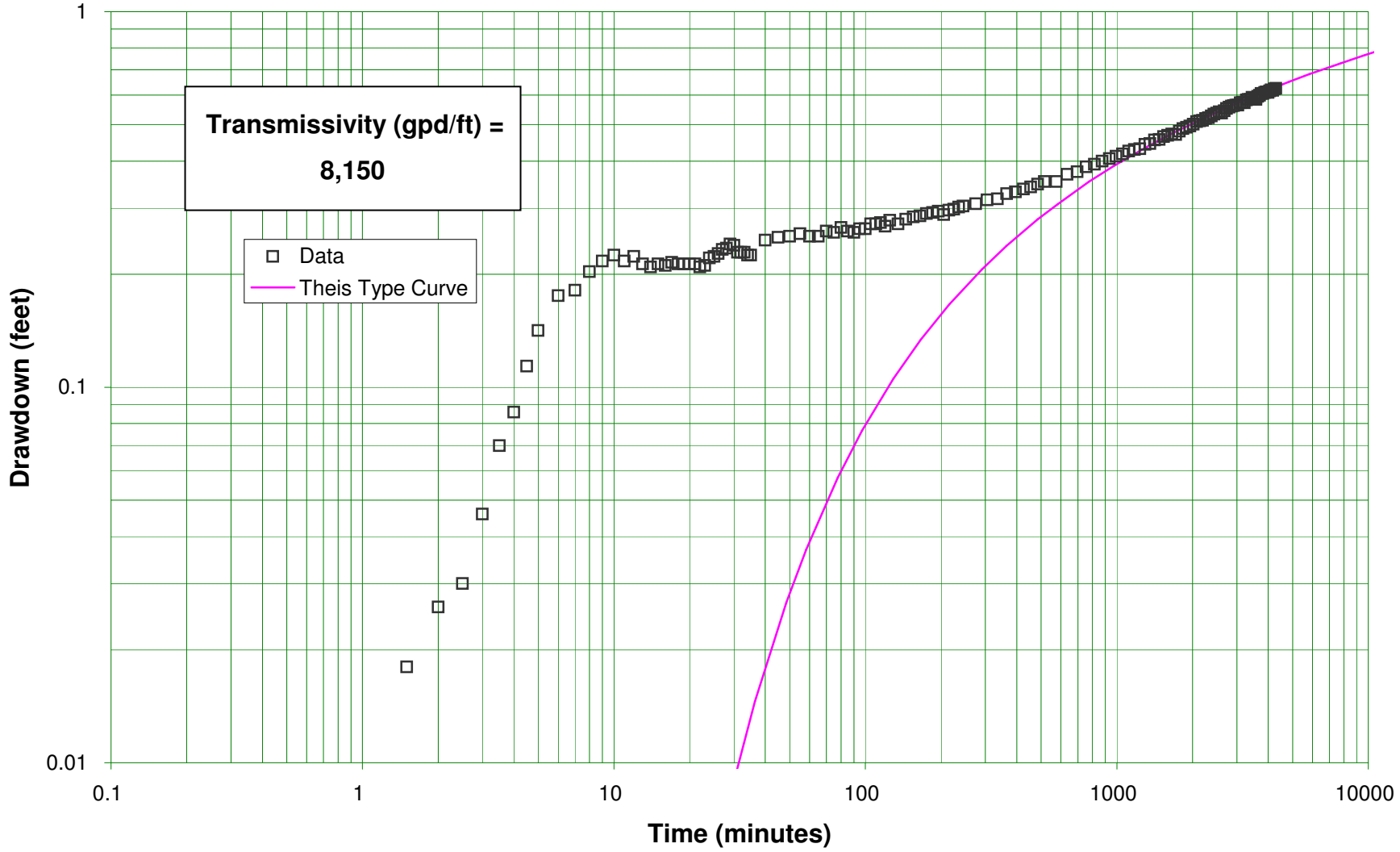


Figure 5-8. A-Zone Test: Time Drawdown Graph for QAL014A (Theis)

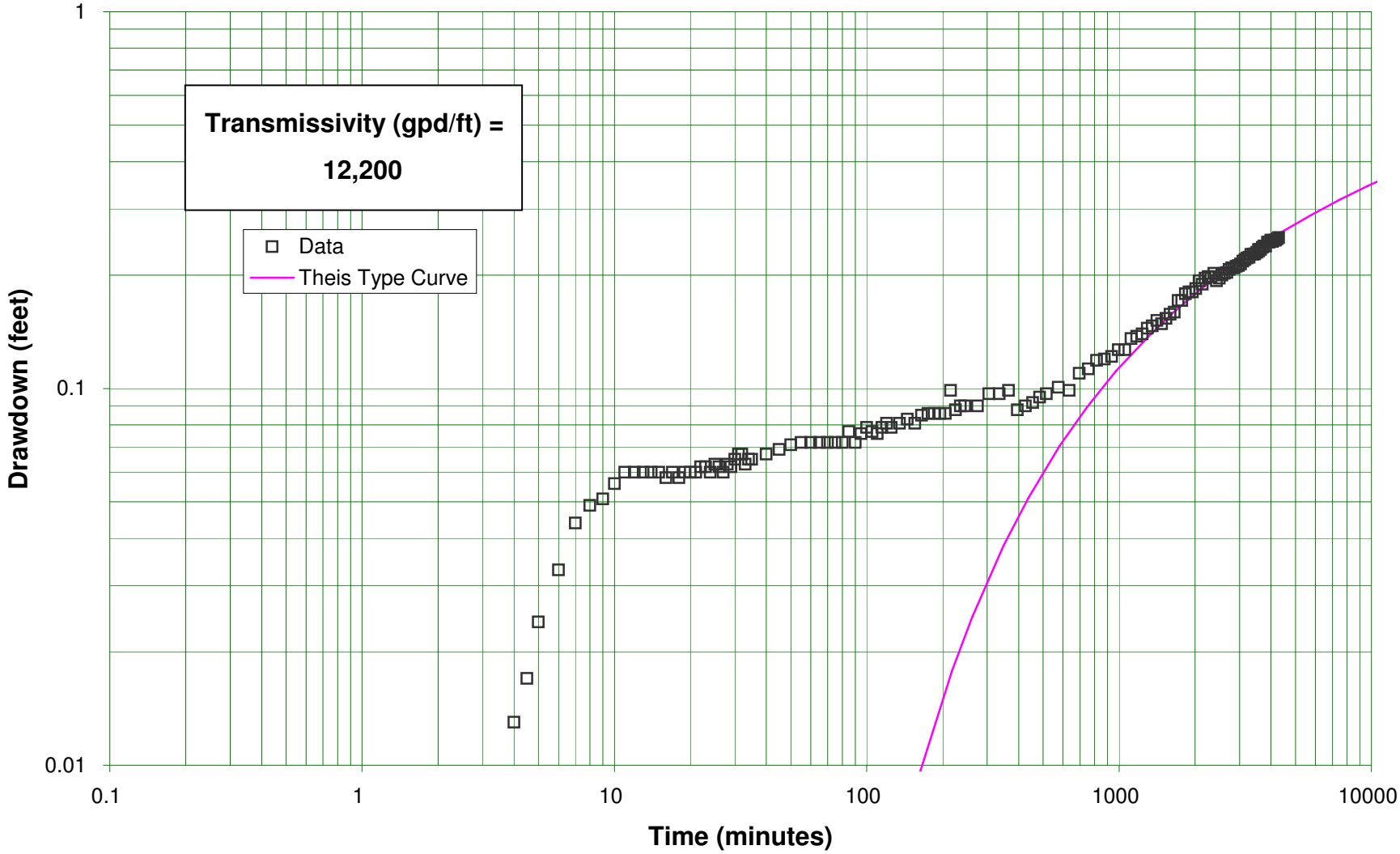


Figure 5-9. A-Zone Test: Time-Drawdown Graph for QAL012A (Neuman)

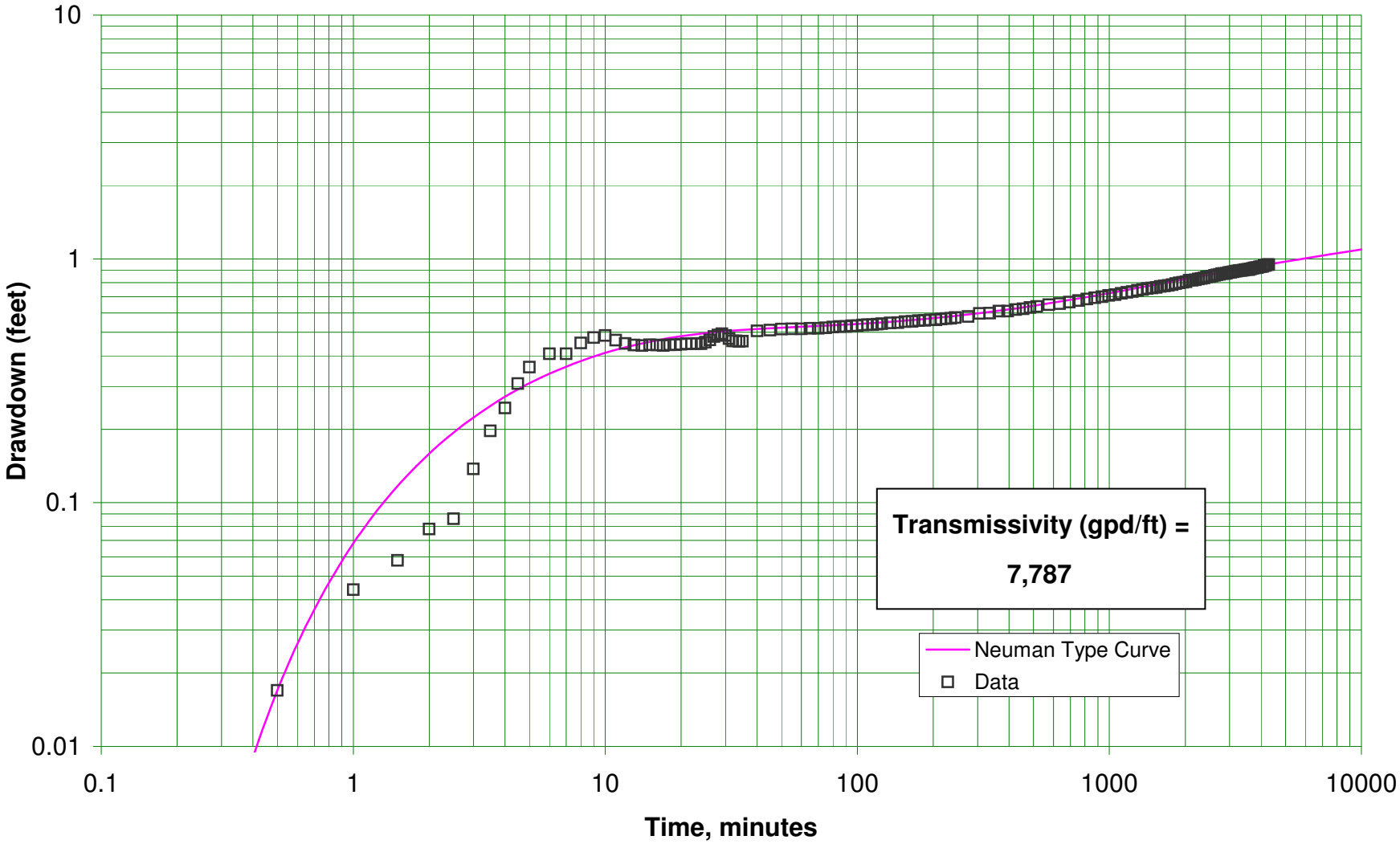


Figure 5-10. A-Zone Test: Time-Drawdown Graph for QAL013A (Neuman)

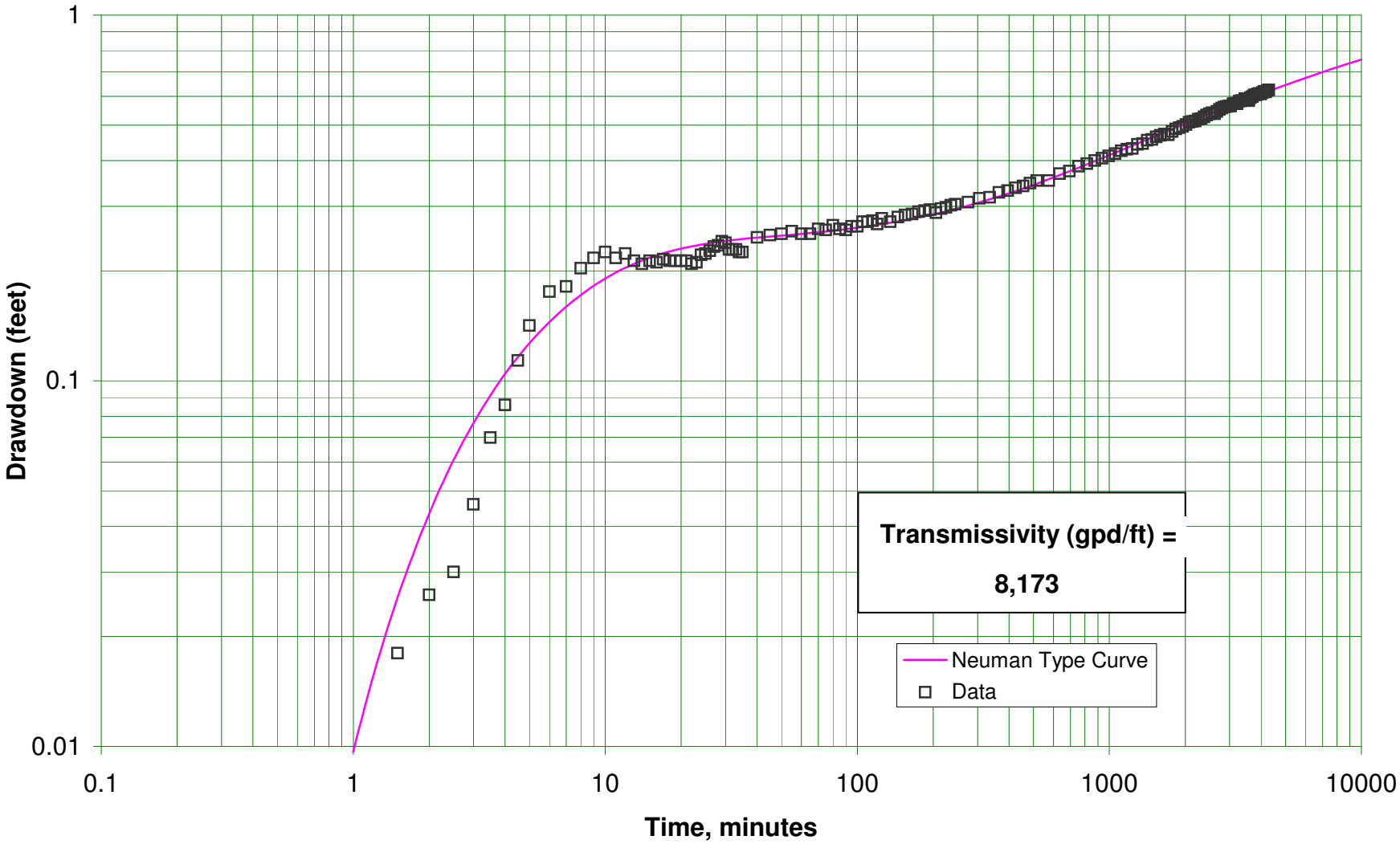


Figure 5-11. A-Zone Test: Time-Drawdown Graph for QAL014A (Neuman)

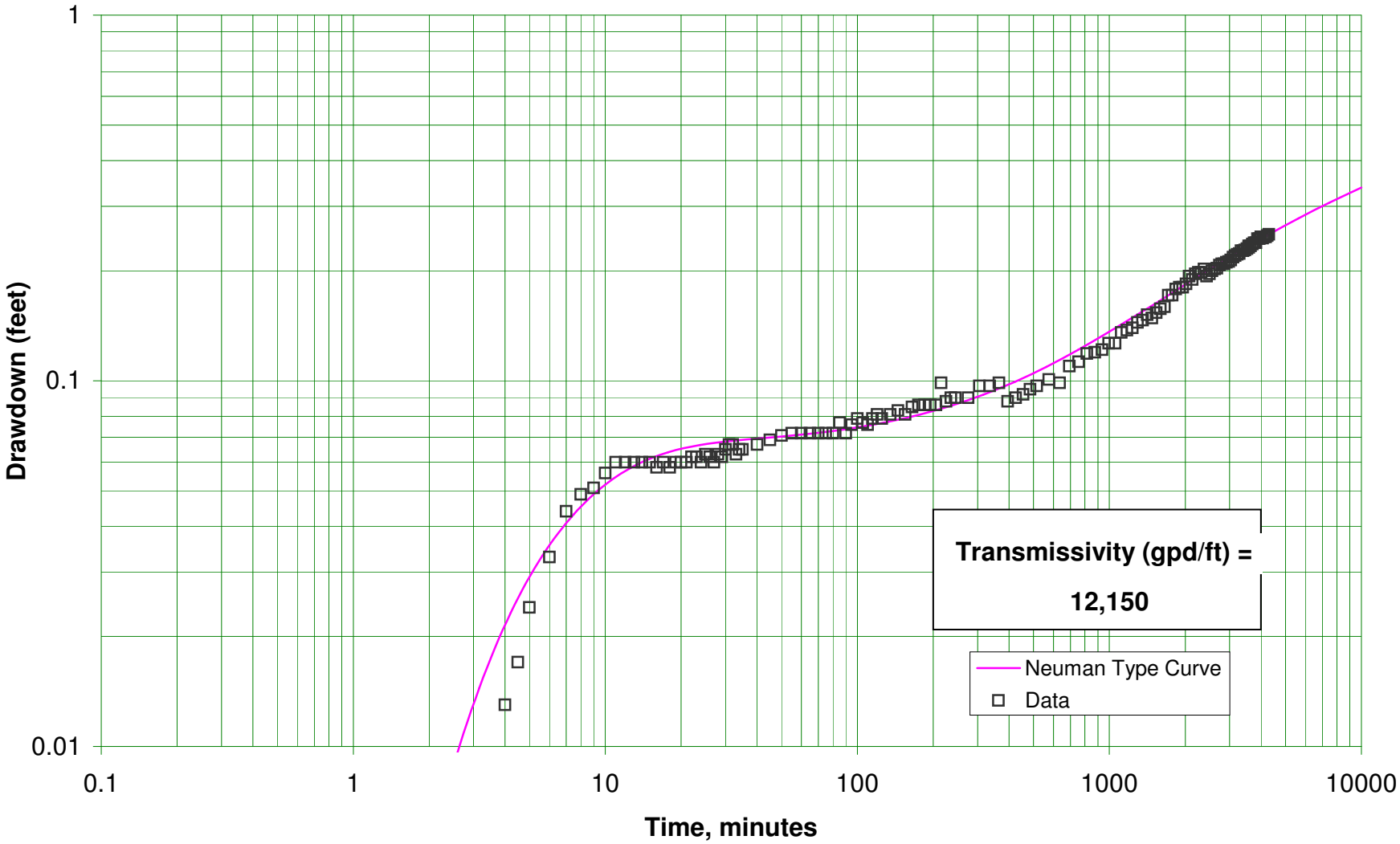
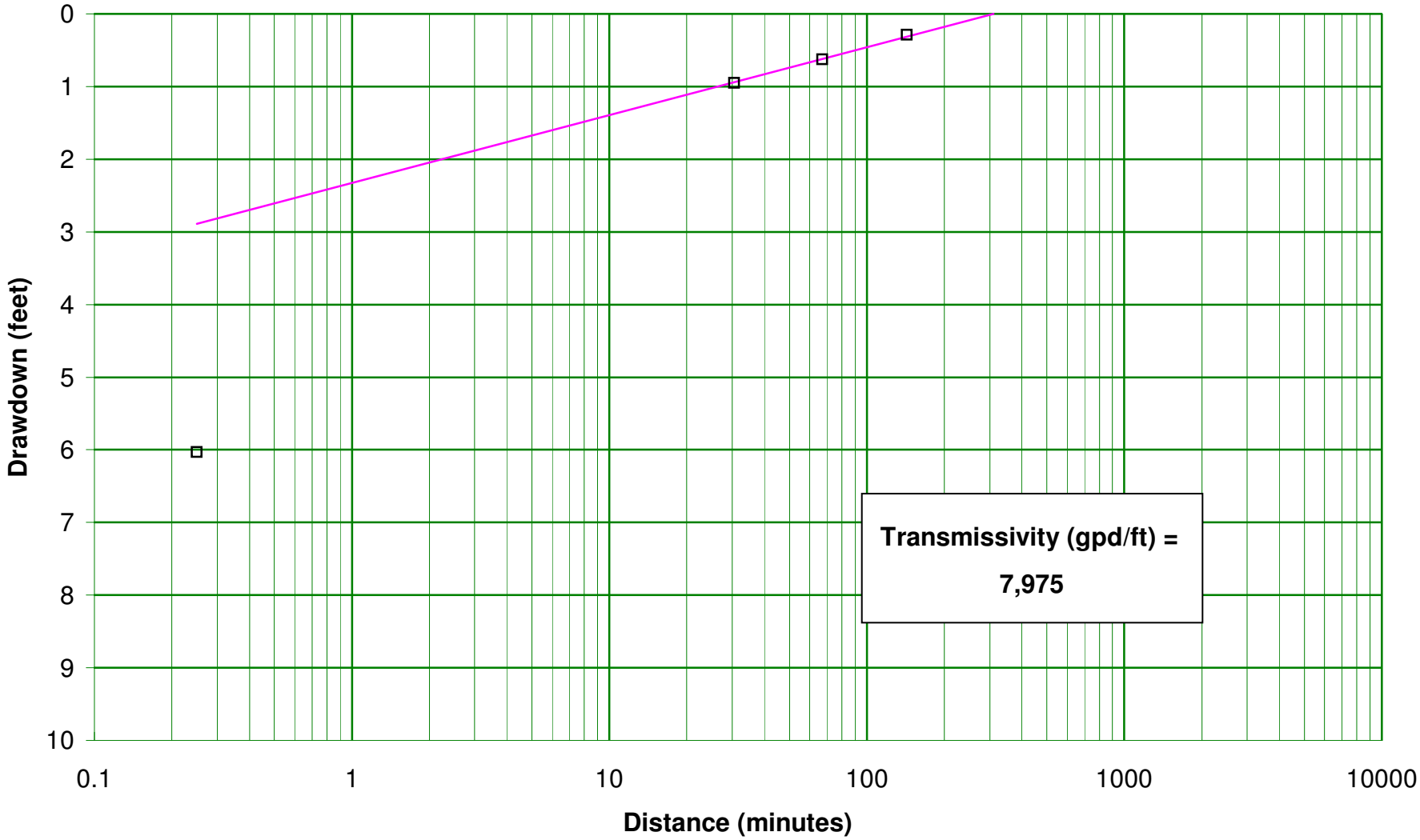


Figure 5-12. D-Zone Test: Distance-Drawdown Graph for 4295 Minutes



TABLES

Table 1. Summary of Hydraulic Properties from D-Zone Pumping Test

Well	Method	Transmissivity gpd/ft	Storage Coefficient [1,2]	Average Transmissivity gpd/ft	Average Storage Coefficient	Aquifer Thickness ft	Average K Value ft/day
QAL011D	Theis Time Drawdown	6,100	---	---	---		
QAL011D	Jacob Time Drawdown [3]	5,159	---	---	---		
QAL011D	Jacob Recovery	5,815	---	5,691	---	19	40
QAL012D	Theis Time Drawdown	6,300	2.5E-04	---	---		
QAL012D	Jacob Time Drawdown	5,980	3.0E-04	---	---		
QAL012D	Jacob Recovery	6,439	---	6,240	2.7E-04	25	33
QAL013D	Theis Time Drawdown	6,200	1.2E-04	---	---		
QAL013D	Jacob Time Drawdown	5,938	1.3E-04	---	---		
QAL013D	Jacob Recovery	6,243	---	6,127	1.3E-04	21	39
QAL014D	Theis Time Drawdown	6,100	1.8E-04	---	---		
QAL014D	Jacob Time Drawdown	6,219	1.8E-04	---	---		
QAL014D	Jacob Recovery	6,326	---	6,215	1.8E-04	26	32
QAL004D	Theis Time Drawdown	6,500	7.9E-05	---	---		
QAL004D	Jacob Time Drawdown	4,965	9.3E-05	---	---		
QAL004D	Jacob Recovery	5,767	---	5,744	9.3E-05	14	55
Distance Drawdown (Jacob) at 120 minutes		7,933	1.00E-04			21	51
Average All Time Drawdown				5,946	1.7E-04	21	40
Average All Time Drawdown, no QAL011D Jacob [3]				6,034	1.7E-04		
Average All Time Drawdown and Recovery				6,003	1.7E-04		
Average All Time Drawdown and Recovery, no QAL011D Jacob [3]				6,064	1.9E-04		
Average Theis Time Drawdown				6,240	1.6E-04		
Average Jacob Time Drawdown				5,652	1.7E-04		
Average Jacob Recovery [2]				6,118	---		
Average All Methods				6,124	1.6E-04		
Average All Methods, no QAL011D Jacob [3]				6,188	1.6E-04		

Notes:

1. Storage coefficients cannot be calculated from the pumping well.
2. Storage coefficients from recovery data are not representative because of negative boundary effects and, therefore, are not reported here.
3. The transmissivity value calculated by the Jacob method for the pumping well are affected by well inefficiency and may not be representative (low). This value, therefore, is not used to calculate the average transmissivity for well QAL011D.

Table 2. Match Points Used for Theis Analyses: A- and D-zone Pumping Tests

Test	Well	Method	Theis Match Point: Time minutes	Theis Match Point: Drawdown feet	Theis Match Point: 1/u	Theis Match Point: W(u)
D Zone	QAL011D	Theis Time Drawdown	27.59	14.60	1.00E+07	15.54
	QAL012D	Theis Time Drawdown	16.25	3.67	1.00E+02	4.04
	QAL013D	Theis Time Drawdown	29.32	3.73	1.00E+02	4.04
	QAL014D	Theis Time Drawdown	17.88	1.71	1.00E+01	1.82
	QAL004D	Theis Time Drawdown	81.82	1.60	1.00E+01	1.82
A Zone	QAL011A	Theis Time Drawdown	4290.00	2.67	5.00E+06	14.85
	QAL012A	Theis Time Drawdown	1284.60	0.73	1.00E+02	4.04
	QAL013A	Theis Time Drawdown	2909.51	0.57	5.00E+01	3.35
	QAL014A	Theis Time Drawdown	2617.85	0.21	1.00E+01	1.82

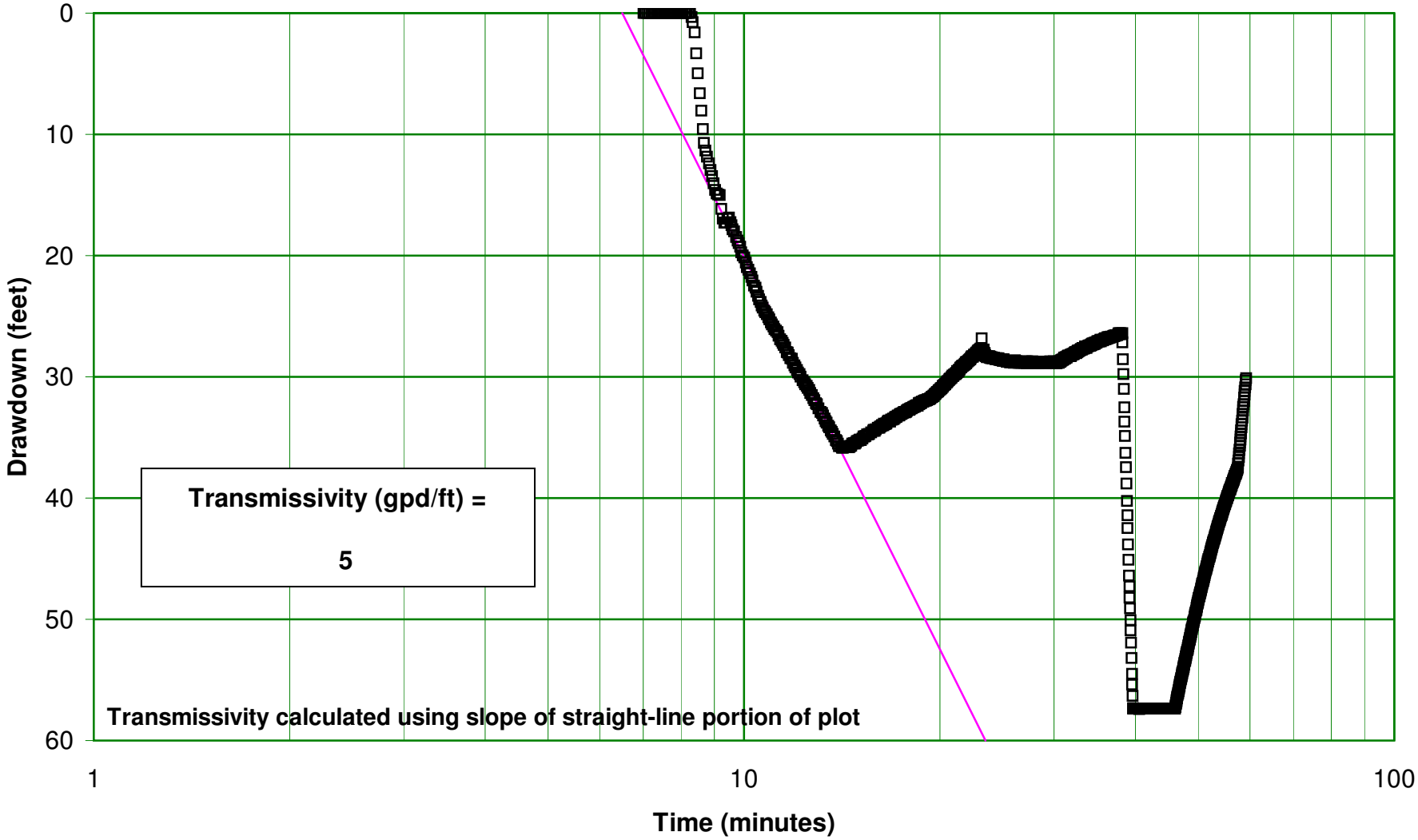
Table 3. Summary of Hydraulic Properties from A-Zone Pumping Test

Well	Method [1]	Transmissivity gpd/ft	Specific Yield [2]	Anisotropy Ratio	Average Transmissivity gpd/ft	Average Specific Yield	Saturated Thickness ft	Average Horizontal K Value ft/day	Average Vertical K Value ft/day
QAL011A	Jacob Time Drawdown	7,703	----						
QAL011A	Theis Time Drawdown	7,650	----		7,677	----	21	49	
QAL012A	Jacob Time Drawdown	7,647	0.038						
QAL012A	Theis Time Drawdown	7,605	0.039						
QAL012A	Neuman Time Drawdown	7,787	0.060	0.043	7,680	0.046	22	47	2.0
QAL013A	Jacob Time Drawdown	8,296	0.035						
QAL013A	Theis Time Drawdown	8,150	0.039						
QAL013A	Neuman Time Drawdown	8,173	0.048	0.038	8,206	0.041	25	44	1.7
QAL014A	Jacob Time Drawdown [3]	12,835	0.053						
QAL014A	Theis Time Drawdown	12,200	0.058						
QAL014A	Neuman Time Drawdown	12,150	0.067	0.026	12,395	0.059	27	61	1.6
Distance Drawdown (Jacob) at 4295 minutes		6,782	0.063						
Average All Time Drawdown				0.036	9,109	0.049	24	50	1.8
Average All Time Drawdown, no QAL014A				0.041	7,876	0.043	24	46	1.8
Average Jacob Time Drawdown					9,120	0.042			
Average Theis Time Drawdown					8,901	0.045			
Average Neuman Time Drawdown					9,370	0.058			
Average All Methods					8,915	0.050			

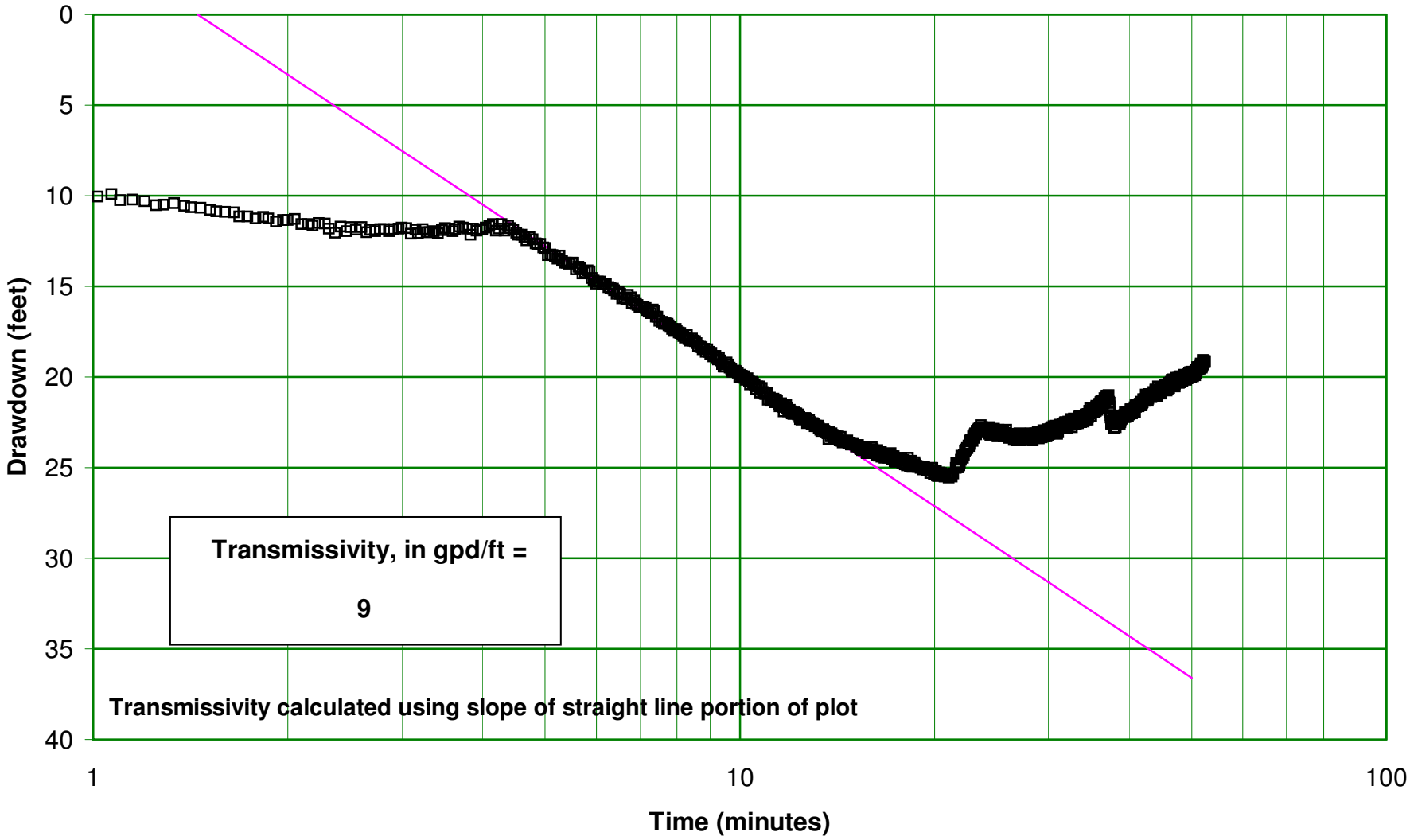
Notes:

1. Recovery data were affected by delayed drainage conditions and were not analyzed.
2. Specific Yield values cannot be calculated from the pumping well.
3. Some of the drawdown data used to calculate the transmissivity and specific yield values by the Jacob method for QAL014A do not meet the criteria for using the Jacob analysis (i.e., the "u" value slightly exceeds 0.05).

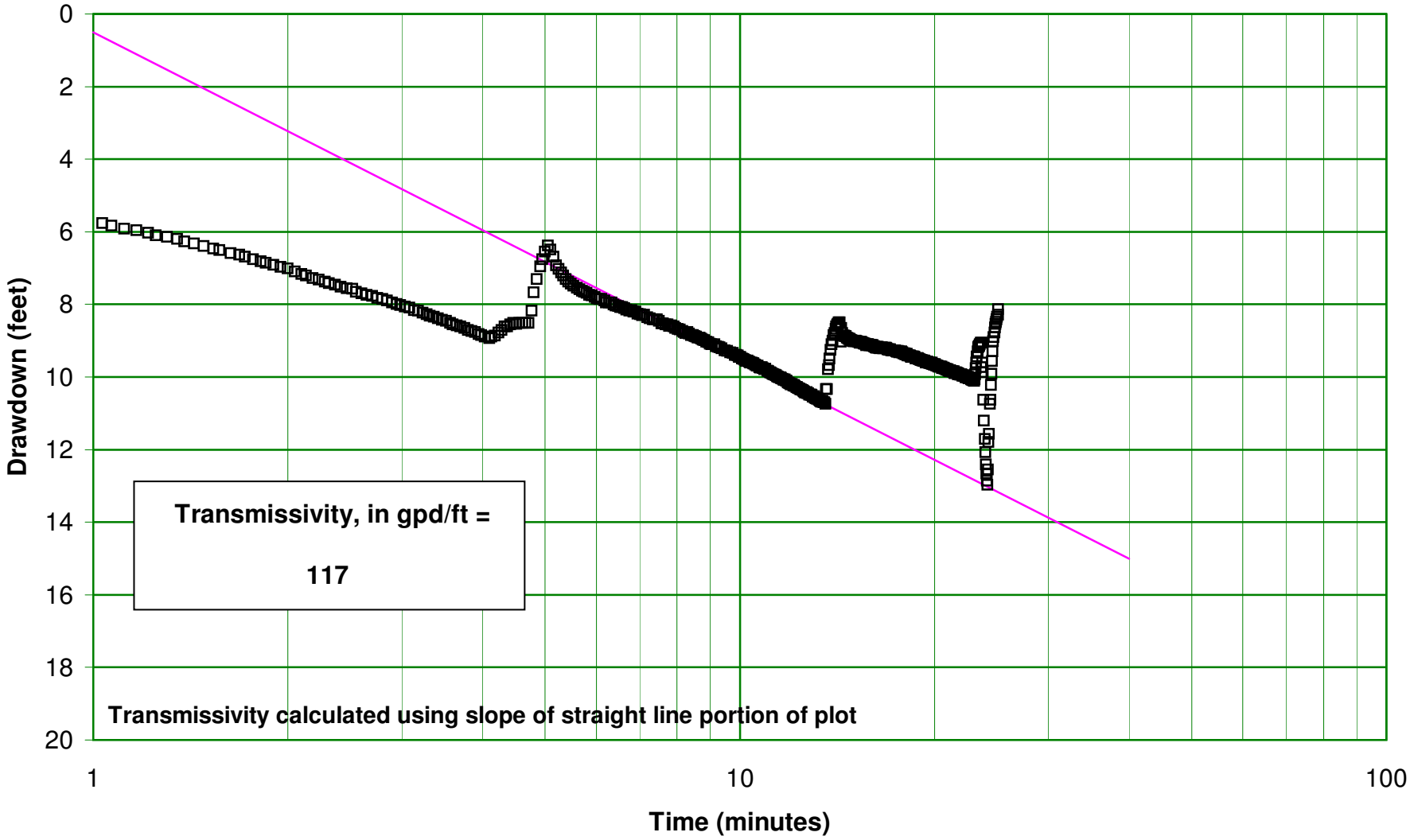
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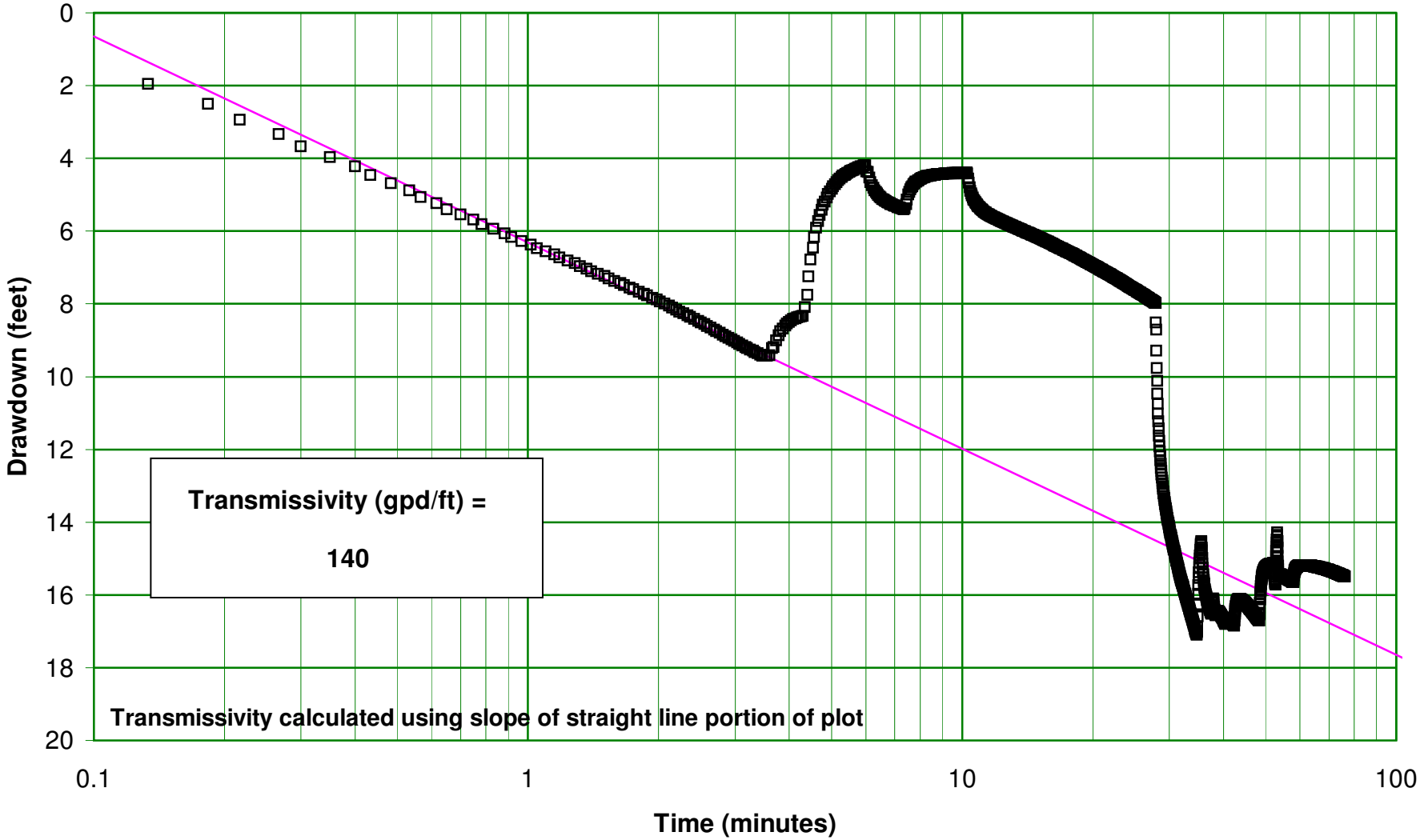
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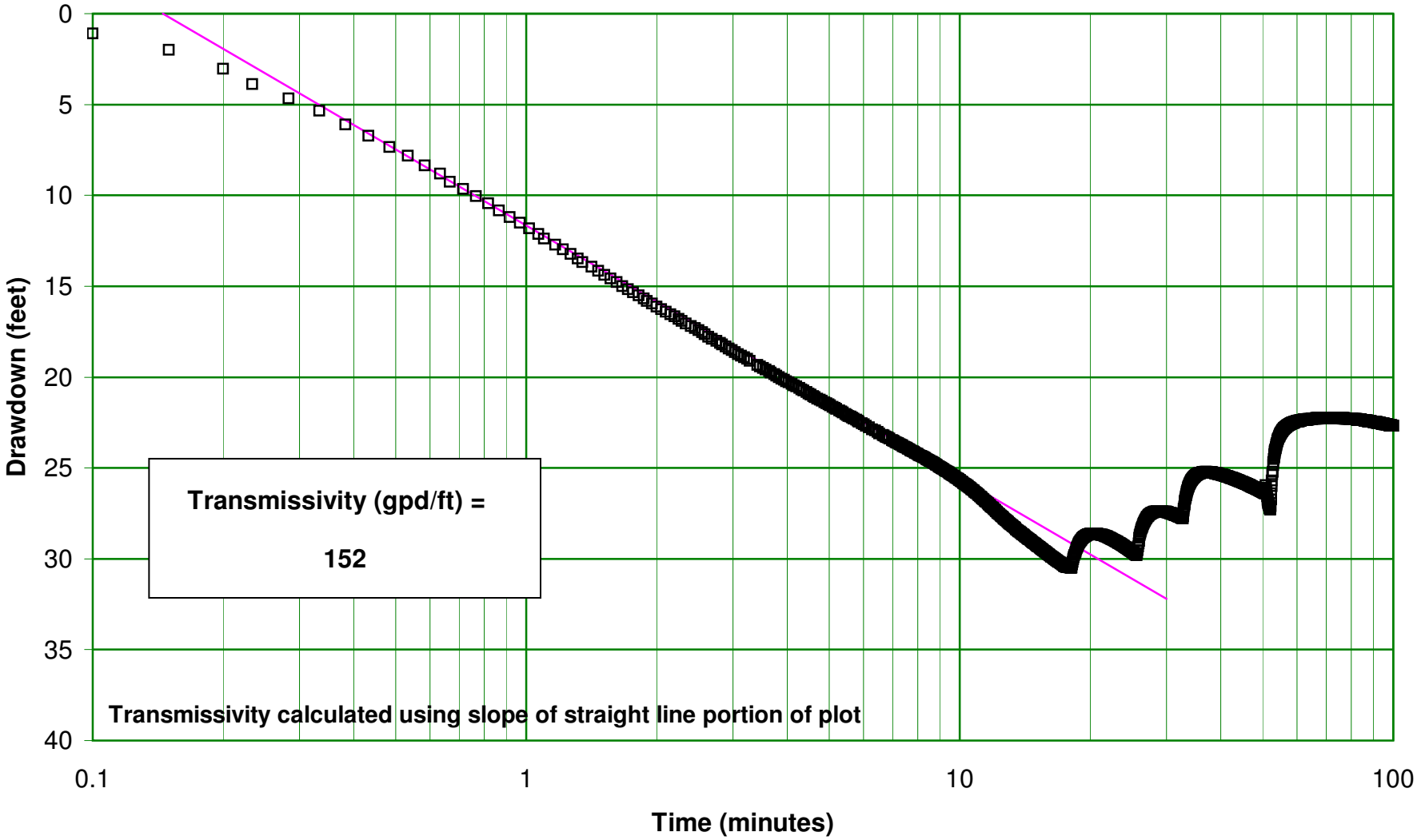
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Bedrock Specific Capacity Test: Boring 04EA054D, August 4, 2004, Eagle Project



Bedrock Specific Capacity Test: Boring 04EA054E, August 4, 2004, Eagle Project



APPENDIX C

Baseline Groundwater Flow Model Status Report

BASELINE GROUNDWATER FLOW MODEL

EAGLE PROJECT
MARQUETTE COUNTY, MICHIGAN

September 2005

PREPARED FOR

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Baseline Groundwater Flow Model

Eagle Project
Marquette County, MI

INTRODUCTION

This report summarizes the approach used to develop a baseline hydrogeologic model for the Eagle Project. As described in the Work Plan for the Stage 2 Baseline Environmental Study, Visual MODFLOW (version 4.0) software is being used to complete the model. This program implements the MODFLOW-2000 finite-difference code that is commonly used for hydrogeologic modeling. The Stage 1 Environmental Baseline Study prepared by North Jackson (Stage 1 Study) and additional supporting data from Stage 2 work form the primary basis for the model design.

A steady state model was developed to represent average conditions in the model domain. The model is calibrated to representative groundwater head data as well as streamflow data. Ultimately, when sufficient data are available, additional simulations may be completed to determine if the model inputs established for the steady state model can represent changing recharge conditions.

MODELING OBJECTIVES

It is vital to establish why the model is being created, and whether the results of simulations completed using the model will answer the questions to be addressed. In the present instance it will be important to understand the following:

- The groundwater flow field beneath the Yellow Dog Plains, and
- The contribution of various components of the hydrologic system to the flux through the system assuming steady state conditions.

Eventually, it also may be desirable to determine whether groundwater and surface-water flow in the local system may be affected by 1) withdrawal of groundwater at the proposed mine facility (either for production use or as a by-product of mine dewatering) and 2) any significant discharges of water to the groundwater system. The model is being completed with these potential goals in mind. Thus, certain accommodations are made in the baseline model so that the existing model can provide the basis for reasonable additional simulations that may be later identified. Some of these accommodations are described below.

CONCEPTUAL BASIS

The conceptual model of the groundwater system in the vicinity of the Yellow Dog Plains used to guide development of the steady state groundwater flow model is presented by

North Jackson Company (North Jackson, 2004 and North Jackson, 2005). Data from their Stage 1 and Stage 2 hydrologic investigations of the alluvium are the primary inputs in the model. Additional data from a recent bedrock investigation were also used to guide model inputs (Golder, 2005). Other data used for the model are described in the following sections and in Table 1.

MODEL DOMAIN

The flow model is constructed on a local scale to coincide with major hydraulic features (boundaries) that influence groundwater and surface water movement near the Eagle Project area. The general area covered by the model includes the southeastern 75 percent of the Yellow Dog Plains (Figure 1). The maximum extent of the active model area is approximately 39,000 feet (7.5 miles) from northwest to southeast and 26,000 feet (5 miles) from northeast to southwest. The east-northeastern, southeastern and southern limits of this area generally coincide with the extent of the glacial deposits (outwash and moraine) that compose the Yellow Dog Plains and north terrace escarpment. The northwestern extent is determined by a significant groundwater basin divide parallel to groundwater flow that was identified in the Stage 2 Baseline Environmental Study prepared by North Jackson, which generally coincides with a watershed boundary between the Salmon Trout River West Branch and the Cedar River (Pine River Watershed).

A portion of the Yellow Dog River watershed is included in the model. This basin is defined on the south by the southern limit of the Yellow Dog Plains (which occurs at a shallow bedrock boundary as defined in regional geological maps) and on the north, by a generally east-to-west groundwater divide. This divide separates two groundwater basins—one to the south that drains into the Yellow Dog River and the one to the north that drains into the Salmon Trout River. The groundwater divide was initially identified in the Stage 1 Study (North Jacskon, 2004), and initial streamflow data for the Salmon Trout River system and Yellow Dog River indicated that a high degree of groundwater capture by the Salmon Trout River system from the Yellow Dog Plains occurs. Therefore the model was used to help further assess the location of this groundwater divide under baseline conditions, and to allow for future predictive simulation of the location of the divide under mining conditions.

The overall model domain provides sufficient coverage to achieve the modeling objectives and possible future objectives in the Eagle Project area. The domain, although large, has been selected to provide a balance between the need to provide a calibrated

baseline model that is capable of simulating watershed-scale flow conditions, while also capable of being used as an assessment tool for future predictive simulations of smaller scale, local mine facility conditions. The predictive model simulations and additional field characterizations will be designed iteratively as specific mine design elements are developed.

GRID SPACING AND ORIENTATION

The horizontal dimensions of individual model cells are 164 feet by 164 feet (50 by 50 meters) throughout the model (Figure 1). This is small enough to achieve simulation accuracy and yet is not too demanding on computer resources, especially during calibration and sensitivity analyses. Ultimately, a finer grid spacing may be applied in the proposed mine facility area. For example, cell sizes of 33 feet by 33 feet (10 by 10 meters) may be used. This would allow the model to accommodate and accurately represent features that may cause significant changes in hydraulic head over short distances. Because these features are not incorporated into the model at this time, however, the established grid provides sufficient discretization to ensure accuracy.

Groundwater flows predominantly to the northeast in the A zone beneath the Yellow Dog Plains. The model grid is oriented more or less in this same direction. Model columns are aligned approximately 30 degrees east of north; essentially normal to the steep-faced terrace north of the Yellow Dog Plains. As a result, model rows are aligned 60 degrees west of north and approximately parallel to the terrace face.

LAYER DEFINITION

The model is divided into 13 layers; 11 active layers and 2 inactive layers to represent the vertical extent of the model. The layers generally coincide with hydrostratigraphic units (where present) identified in the Stage 1 and Stage 2 studies and will be identified as follows:

- Layer 1 – upper A zone (coarse-grained outwash)
- Layer 2 – lower A zone (coarse-grained outwash)
- Layer 3 – B zone (fine-grained outwash)
- Layer 4 – C zone (fine-grained outwash)
- Layer 5 – D zone (coarse-grained outwash)
- Layer 6 – E zone and F zone (fine and coarse-grained till and outwash)

- Layer 7 – Upper section of bedrock generally under Yellow Dog Plains (southern portion of the model domain); coarse-textured till beneath and north of terrace slope (generally northern portion of the model domain)
- Layer 8 – Upper bedrock generally under Yellow Dog Plains; coarse-textured till beneath and north of terrace slope
- Layer 9 – Upper bedrock generally under Yellow Dog Plains; coarse-textured till beneath and north of terrace slope
- Layers 10 and 11 – Upper bedrock
- Layers 12 and 13 – Lower bedrock with occasional water conductive fractures

The A zone is subdivided into two layers to allow more accurate definition where the water table surface slopes more steeply (for example, the steep-faced terrace at the northern boundary of the Yellow Dog Plains). Layers 12 and 13 are not active in the baseline model, but are included to allow eventual modeling of conditions in the lower bedrock, if necessary. The active layers of the model are shown in two cross sections: one southwest to northeast through monitoring well QAL004A/D (Figure 2).

Layer surfaces were assigned to the various model layers based on either surface elevation data or interpolation of well log data. The layer thicknesses vary over the model domain depending on the thicknesses of the corresponding hydrostratigraphic unit and whether it is locally present.[1] Simulation of conditions where bedrock outcrops near the center of the model domain is accomplished by the interpolated surface of the bedrock and by assigning bedrock hydraulic conductivity values to surrounding layers as necessary.

HYDRAULIC PARAMETERS

Horizontal hydraulic conductivity is being assigned to the model based on data from the A- and D-zone pumping tests, specific capacity tests of monitoring wells conducted in the Stage 1 Study, laboratory permeability testing, and grain-size distribution of sediments where available. Values of vertical hydraulic conductivity are being assigned based on the anisotropy ratios determined in the A-zone pumping test. A summary of the data used for assigning hydraulic conductivity values these characteristics is shown in Table 2.

[1] Where units are locally absent, hydraulic conductivity values are assigned to the subject layer based on values from an adjacent layer. For example, where the C and D Zones (Layers 3 and 4) are absent near QAL023, Layer 4 and 5 are assigned hydraulic conductivities from the B Zone (Layer 3).

Generally, the areal distribution of hydraulic parameters is based on natural neighbor interpolation of these values between monitoring well locations where the parameters have been defined[2]. Some adjustment of the interpolation is necessary to give more weight to values determined from more reliable methods (i.e., pumping tests and certain specific capacity tests). Furthermore, as described previously, hydraulic conductivity values from an adjacent layer are assigned locally to a layer where it is not present in the field. Specific yield and storativity used in the model are based on results from the pumping tests. Values used are summarized in Table 1.

Bedrock hydraulic parameters are based on data from the bedrock hydrogeological investigation initiated along with mine engineering studies in the Fall of 2005 (Golder, 2005). Data from specific capacity tests of exploration boreholes performed as part of the Stage 2 environmental baseline study were also considered while assigning bedrock parameters.

BOUNDARY CONDITIONS

Boundary conditions define the character of water movement at the limits of the active model and at certain points within the model domain where water is either added or removed. The boundary conditions being used in the current model are the following:

- No flow
- Constant head
- Drain
- River
- Recharge

Figure 1 shows the position of most of these boundaries in the flow model. The initial value of recharge assigned to the model was uniform across the model domain and, therefore, is not shown in this figure (the final recharge inputs are discussed further below). Additional information about boundary conditions is provided below.

[2] Natural neighbor interpolation is a weighted moving average technique that uses geometric relationships to choose and weight nearby points.

NO-FLOW BOUNDARIES

The northwestern, northeastern and southern limits of the active model area are no-flow boundaries. These boundaries generally represent groundwater and/or surface-water divides. The northwestern no-flow boundary is determined by a significant groundwater divide between the Salmon Trout West Branch and the Cedar River (Pine Watershed). The northeastern boundary is set at approximately the limit of the Salmon Trout River Watershed. The southern no-flow boundary that is used for all model layers, excepting Layer 5, is based on the limit of the Yellow Dog Plains glacial outwash sediments as identified from regional geological maps.

The bottom of the model domain corresponds to the identified limit of the upper bedrock and is also set as a no-flow boundary for the baseline conditions model. The underlying lower bedrock is generally unfractured. Only limited localized water-conductive zones (features) occur within the low background conductivity of the bulk of this unit and there is a large contrast (approximately two orders of magnitude) in hydraulic conductivity between the lower bedrock and upper bedrock (Golder, 2005). Furthermore, at a larger scale (such as at scale of this baseline model), the overall hydraulic conductivity of bedrock with localized water-conductive zones is reasonably represented by the background conductivity of the rock mass (Shapiro, 2004). Thus, the lower bedrock can be reliably established as a no-flow boundary for the purposes of the baseline conditions model.

CONSTANT-HEAD BOUNDARIES

A constant-head boundary is located along the base of the steep slope north of the Yellow Dog Plains. This boundary corresponds approximately to the regional geological mapping of the termination of the glacial and post-glacial unconsolidated deposits and where the Archaen-age granitic bedrock is at or very near ground surface. The specified heads used for this boundary are based on an approximation of the water table surface made using 1) stream stage elevations from topographic maps and 2) ground surface elevations less an estimated depth to water averaging 3.3 feet (1 meter).

Constant-head boundaries also represent conditions flanking the Yellow Dog River where it enters the model domain in the southwest and adjacent to the river where it borders the domain at the southeastern extent. Heads assigned to these boundaries were based on the estimated water table elevation adjacent to the river determined by 1) adjacent stream

stage elevations from topographic maps and 2) ground surface elevations less an estimated depth to water averaging 3.3 feet (1 meter).

A constant-head boundary is also used for the D zone (Layer 5) along a portion the southern model boundary. It is assumed that the D zone receives recharge along the bedrock/alluvium interface at this location and, as a result, heads in the D zone should be similar to those in the A zone. The head values for the Layer 5 constant head boundary at this location were established on this basis.

DRAINS

Drain cells are included on the north-sloping, steep-faced terrace at the northern extent of the Yellow Dog Plains. These drains are placed in the model at the locations of seep piezometers and are used to represent the groundwater seeps that occur on this slope. Additional seeps are present along the terrace but are typically directly connected to small stream tributaries that drain directly to the primary channels of the upper Salmon Trout River system, and captured within the measured streamflow stations of the north terrace. These additional seeps are therefore captured within the river system and are modeled as river cell boundaries (discussed below).

Each drain boundary condition was assigned a head elevation based on water levels measured in seep piezometers during October 2004 and was assigned an estimated conductance value of 1077 feet^2 per day based on an averaged hydraulic conductivity (combined horizontal and vertical) for D-Zone sediments of 30 feet per day and an estimated average seep area of approximately 100 feet^2.

RIVERS

The MODFLOW river package was used to represent water entering or leaving the study area by the streams that occur within the area represented by the active model domain. River cells coincide with the important stream courses shown in Figure 1.[3] The West Branch, Mainstem and East Branch of the Salmon Trout River are represented by river cells, as is the segment of the Yellow Dog River included within the boundaries of the model. Primary stream channel location and characteristics that are not directly available

[3] River cells are not assigned to wetland areas. Instead, they are represented with areas of high hydraulic conductivity which allows the potential for simulations of the effect of water withdrawals or discharges on heads in those areas.

from the baseline conditions studies are based on extrapolation of data from USGS topographic maps.

RECHARGE

Recharge assumed for the model is 'net' recharge; that is, recharge less any assumed evapotranspiration. Evapotranspiration, therefore, is not used as a model input. The initial net recharge value used in the model for the Yellow Dog Plains was 16 inches per year, which is based on data from the nearby Sands Plain study (Granneman, 1984). The geologic terrane in the area examined in that study is similar to the Yellow Dog Plains and vicinity. Data from the Sands Plain study indicate that the average precipitation for the two years during which the study was conducted, 1980-1981, was 30.29 inches. This value is similar to the normal precipitation of 29.74 inches per year for 1970 to 2000 at Big Bay, near the Yellow Dog Plains (NCDC, 2005a). On these bases, recharge measured in the Sands Plain study should be similar to the area within the model domain and can be used as a basis for initial estimates of recharge for the baseline model.

Recharge for the same period averaged 14.73 inches. To evaluate how this recharge value should be adjusted for the period represented by the baseline model, precipitation data from Marquette County Airport were evaluated relative to the precipitation data from the Sands Plain study. Precipitation throughout the Upper Peninsula of Michigan was above average for 2004; some locations reported as much as 150 percent of normal but precipitation in most areas was about 110 percent of normal (National Weather Service, 2005). At the Marquette County Airport, Marquette, Michigan, precipitation for 2004 was 39.33 inches, about 8 percent above the normal of 36.31 inches (NCDC, 2005b). As summarized below, an estimated recharge value for the Sands Plain can be calculated by comparing the 2004 data at Marquette to the 1980-1981 average at Marquette.

Period	Precipitation in the Sands Plain Study Area, inches/year	Recharge in the Sands Plain Study Area, inches/year	Recharge as a Percent of Precipitation in the Sands Plain Study Area	Precipitation at the Marquette County Airport, inches/year
1980	33.61	15.97	48%	33.92
1981	26.97	13.49	50%	34.50
1980-1981 Average	30.29	14.73	49%	34.21
2004	Not Available	Not Available	Not Available	39.33

Precipitation at Marquette for 2004 Relative to 1980-1981	115%
Estimated Recharge for Sands Plain for 2004 Based on Precipitation Ratio at Marquette [(average of 1980 to 1981 recharge at Sands Plain) x (2004 precipitation at Marquette)/(average of 1980 to 1981 precipitation at Marquette), inches/year	16.93

This approach assumes that the ratio of 2004 precipitation to 1980-1981 precipitation at Marquette applies to the Sands Plain area. The similarities between the Sands Plain and the Yellow Dog Plains areas suggest that the value of 16.93 inches per year provides a possible starting point for the value of recharge assigned to the model. Spatial variability in precipitation in the Upper Peninsula (for example, the range of 110 to 150 percent of normal for 2004) suggests that either higher or lower values of recharge could have occurred in the Yellow Dog Plains during 2004. Nevertheless, a recharge value of 16 inches per year was initially assigned to the model. This value is approximately halfway between the average values from the Sands Plain study and the estimated value determined by the method described above and is a reasonable, 'lower-end' starting assumption.

The similar character of surficial sediments throughout most of the Yellow Dog Plains indicates that a uniform value is a reasonable first assumption. But, the variations in topography present over the model domain influence recharge rates significantly. For example, recharge rates at the base of long, steep slopes are generally higher. Such areas occur in the extreme southern and northern portions of the model domain. A similar approach of increasing recharge rates near elevated bedrock was taken in the Sands Plain study. Infiltration rates are also assumed to be higher in wetland areas, while rates are generally lower where low conductivity materials occur at or near ground surface. Such conditions occur near the proposed mine facility, where bedrock outcrops or exists just below ground surface. Lower recharge rates are also expected where terrain slopes steeply, such as along the terrace slope north of the proposed mine. Combinations of the conditions listed above occur elsewhere in the model domain and were considered in assigning initial recharge values to the various zones.

Based on the different topographic conditions in the model domain, different zones of recharge were initially assigned to the model. The recharge rate in each zone was adjusted during model calibration. The final rates achieved after completion of model calibration are shown in Figure 3. The highest rate is assigned to the area at the base of the southern bedrock highland, south of the Yellow Dog River, to account for the influence of runoff from the highlands. No recharge was assigned to the area at and immediately around the high bedrock outcrop near the proposed mine facility to reflect the fact that limited recharge likely occurs in this area. Generally, recharge rates assigned to the greatest areal extent of the model domain are 16 inches per year or less.

TIME BASIS

The current baseline model is constructed to provide a steady state simulation of the groundwater flow system (no change in groundwater storage), and model inputs are made to represent average conditions. Although seasonal variation in groundwater levels and streamflow occurs, baseline condition groundwater potentiometric maps of the area indicate that fairly consistent hydraulic gradients and flow regimes exist across a watershed-scale area. Thus, a steady state simulation should provide a good baseline for representing the general interactions of area hydraulic features, mapping groundwater basins, and estimating the degree of capture of groundwater by local streams.

Eventually, simulations based on transient conditions can be run to determine if predictive simulation model inputs need to be adjusted to improve model accuracy. The model currently in progress will accommodate transient inputs to achieve this objective with limited modifications.

WATER BUDGET ZONES

Five active water budget zones were established in the model using the MODFLOW Zone Budget package. These zones represent the subregional water budgets within the four watersheds and subwatersheds in the model domain as follows:

- Zone 2 represents the Mainstem of the Salmon Trout River,
- Zone 3 represents the East Branch of the Salmon Trout River,
- Zone 4 represents the West Branch of the Salmon Trout River,
- Zone 5 represents the upstream reach of the portion of the Yellow Dog River within the model domain, and
- Zone 6 represents the downstream reach of the portion of the Yellow Dog River within the model domain. [4]

These zones provide water balance information useful in model calibration and in estimating the groundwater basins that interact with these stream watersheds. Each of zones 2, 3, 4, and 5 corresponds to the primary subwatersheds near the project area. Discharge from these subwatersheds is represented by data from the farthest downstream gauging stations within the model domain: STRM004, STRE002, STRW001, and

[4] Zone 1 was used for initial calibration runs but is unused in the calibrated model.

YDRM002, for the Salmon Trout River Main Branch, East Branch and West Branch and the Yellow Dog River, respectively. Stream stage is measured continuously for development of discharge rating curves for each of these stations except STRW001, where only discrete flow measurements have been made during the baseline study.

By establishing the water budget zones in the model to correspond to the subwatersheds represented by these gauging stations, simulated outflow from the model river cells can be compared to the estimated groundwater component of streamflow during calibration. The groundwater component of streamflow was estimated by North Jackson Company using manual hydrograph separation techniques from the portion of the discharge rating curves that corresponds to the discrete groundwater level and streamflow measurement events that provided the time basis data for model calibration (early October 2004).[5]

The zones were assigned initially based on topographic analysis. Final location of the zone boundaries was established iteratively during model calibration by particle tracking and analysis of groundwater velocity vectors. Thus, the zones are used to provide the delineation of groundwater basins associated with the subwatersheds listed above based on the model simulation.

MODEL CALIBRATION

Model calibration was guided by three objectives:

- Achieve the best possible statistical match of model calculated (simulated) heads to measured heads based on an analysis of the normalized root mean squared error (RMS%),
- Match simulated river outflows to streamflow (adjusted to baseflow conditions), and
- Attain the best match of simulated heads to measured heads in areas closest to the proposed mine facility and underground workings (for example, the calibration sought to achieve a close match of model calculated heads to measured heads in the vicinity of monitoring wells QAL023 (above the ore body) and QAL008 (downgradient of the peridotite outcrop).

[5] Baseflow values for the Yellow Dog River and the Mainstem and East Branch of the Salmon Trout River were determined by hydrograph separation analyses completed by North Jackson for the Stage 2 Hydrology Report, which is in progress.

The calibration effort sought an overall best fit to the calibration objectives rather than maximizing or over-weighting any of the three measures listed above

Calibration targets were established for the steady state model based on groundwater levels and streamflow data collected during Stage 1 and Stage 2. Groundwater elevation data collected during October and November 2004 were used as head calibration targets. Based on a review of stream flow and groundwater elevation data, these data were used because they provide a complete data set covering the broadest extent of the model domain under hydrological conditions judged to be representative of about average conditions during the period of baseline data collection.

Calibration targets for the groundwater component of streamflow (baseflow) were established on estimates determined using standard manual hydrograph separation techniques, where continuous discharge ratings curves were available, and comparison to discrete flow measurements taken at during the groundwater elevation measurement event during this period. As described previously, stream stage is measured continuously and yields discharge rating curves for each gauging station except STRW001 (in the Salmon Trout River West Branch). Because only discrete flow measurements have been made at this station during the baseline study, it is necessary to establish a baseflow calibration target using data from other stations. The West Branch subwatershed is adjacent to the Main Branch subwatershed, but hydraulically more similar to the East Branch subwatershed.[6] Thus, baseflow percentages from STRM004 (71 percent) and STRE002 (96 percent) are assumed to be low and high end points, respectively, for baseflow contribution to the West Branch. On this basis, baseflow percentages for the Main and East Branches were averaged to establish a baseflow percentage for the West Branch of the Salmon Trout River (83 percent) and consequently a baseflow calibration target. This baseflow target estimated for station STRW001 and the targets for the other stations based on hydrograph separation were used as final calibration targets. During calibration, water balance data (simulated river outflow) from each of the four water budget zones described previously were compared to the corresponding baseflow calibration targets for each gauging station located farthest downstream in the zone.

[6] Based on October 2004 measurements, stream discharge per square mile of subwatershed is 1.4 cfs per square mile for the West and East Branches, but 0.5 cfs per square mile for the Main Branch (North Jackson, 2005).

In addition to calibrating to the head and streamflow targets, calibration objectives also included closely monitoring head residuals (calculated head minus measured head), particularly at locations close to the project area. Residuals at these locations were minimized as much as possible during calibration.

Recharge and horizontal and vertical hydraulic conductivities were adjusted during model calibration until the best match with calibration targets for both heads and streamflows (adjusted to baseflow values) could be achieved. Riverbed conductance values were also adjusted to improve calibration to baseflow targets. Generally, initial parameter values were given greater weight where reliable testing had established those values, for example, in the vicinity of A-Zone and D-Zone pumping tests. Specified head boundary conditions were not adjusted during calibration. Results of model calibration to head data are shown in Figures 4 and 5. A comparison of the simulated river cell outflows to stream baseflow conditions is provided in Table 3 and shown in Figure 6.

The validity of the model solution was also judged during calibration by examining the results of the model water balance. This was done to determine if the model solver parameters were sufficient to produce a reliable solution without mass loss. Generally, if the mass balance error is less than 2% the simulation is considered acceptable (Waterloo Hydrogeologic, 2004). Results of the water balance evaluation for the baseline model show an excellent match between mass entering the model and mass leaving the model (Figure 7). The mass balance error is less than 0.01 percent.

The model has not been calibrated to transient conditions at this time because of the limited available data over time. Once data are available, calibration to transient conditions (head and streamflow data) can be accomplished by setting targets to seasonally grouped data sets.

RESULTS

The contoured distribution of heads (equipotentials) produced by the calibrated model are shown in Figures 8 and 9. Equipotentials shown for Layer 2 correspond to the major (lower) portion of the A Zone. Because model Layer 2 is only active in the southern portion of the model, equipotentials are only shown for that area. Equipotentials for model Layer 5 generally correspond to the D Zone. In some areas, however, where the D Zone is absent in the study area, Layer 5 represents other hydrostratigraphic units. For example, where the D Zone is absent in the vicinity of monitoring wells QAL006A/B and

QAL010A, Layer 5 was assigned hydraulic properties representative of the E Zone. Thus, simulated heads in Layer 5 in the area surrounding and east of those wells represents heads in the E Zone. Similarly, heads near the proposed mine facility are representative of the B Zone near QAL023 and of the weathered bedrock near the high bedrock outcrop.

Groundwater divides between the major subwatersheds are also shown in Figures 8 and 9. These divides were determined from model simulations by backward particle tracking from model river cells. Analysis of velocity vectors provides additional insight and was used to refine the initial locations of the divides determined from particle tracking. The distribution of simulated outflow through the model river cells is shown in Table 3 and Figure 6.

The baseflow component calculated from the October 2004 streamflows at the four gauging stations (STRM002, STRE002, STRW001, and YDRM002) totals 27.84 cfs.[7] The total simulated river outflow was 27.79 cfs, suggesting an overall satisfactory calibration to streamflow. Simulated outflows compared to baseflows for the individual gauging stations is generally good, however, the model underestimates the outflow from the Yellow Dog River upstream of the gauging station YDRM002, but overestimates outflow from the Mainstem of the Salmon Trout River. This may result because the model does not simulate capture of the D zone by the Yellow Dog River. Substantial D-zone flow is instead captured by the Mainstem of the Salmon Trout River, with some capture by the East and West Branches. If some capture of D-zone groundwater by the Yellow Dog River actually occurs, this may explain the difference.

SENSITIVITY ANALYSES

After completion of calibration, selected model parameters were adjusted to determine which parameters cause model outputs to deviate most from calibration targets. Horizontal and vertical hydraulic conductivity, recharge and streambed conductance were tested in this analysis by increasing and decreasing the values by up to plus and minus 20 percent. The relative effects these changes have on model results were determined by examining both their effect on model groundwater levels (heads) and streamflow (net

[7] Note that the baseflow contribution to October 2004 measured streamflow in the West Branch of the Salmon Trout River was not calculated from hydrograph separation but was estimated based on streamflow data from the West Branch and an average of the baseflow percentages in the Main and East Branches of the Salmon Trout River.

river outflow). The effect of parameter adjustments on model heads is judged by changes in the normalized root mean squared error (RMS %). The effect on streamflow is judged by changes in the net overall river outflow relative to the overall streamflow calibration target (27.84 cfs). Results of this sensitivity testing are shown for horizontal hydraulic conductivity, vertical hydraulic conductivity, recharge, and streambed conductance, respectively, in Figures 10 through 13.

The model is clearly most sensitive to changes in recharge. Variations from 0.8 to 1.2 times the calibrated recharge values have the greatest effect on both the RMS% (heads) and response of simulated streamflow. Changes to horizontal hydraulic conductivity values produce moderate changes in both simulated streamflow and heads. Vertical hydraulic conductivity adjustments similarly affected simulated heads but had little effect on streamflow. Changing streambed conductance produced only minor changes in both simulated heads and streamflow over the range of parameter variation.

The sensitivity analyses indicate that the calibrated model results are close to the optimum match to both head and adjusted streamflow targets. A slight adjustment of model parameters (2 to 3 percent) might improve calibration for two of the three calibration objectives, however, these adjustments would reduce the correlation of simulated heads to observed heads in areas of concern. Thus, although additional focused parameter adjustments may improve certain aspects of model calibration, the sensitivity analyses support the fact that broad changes in model parameters would do little to improve the model results.

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FIGURES

Note: Axes scales are in meters.

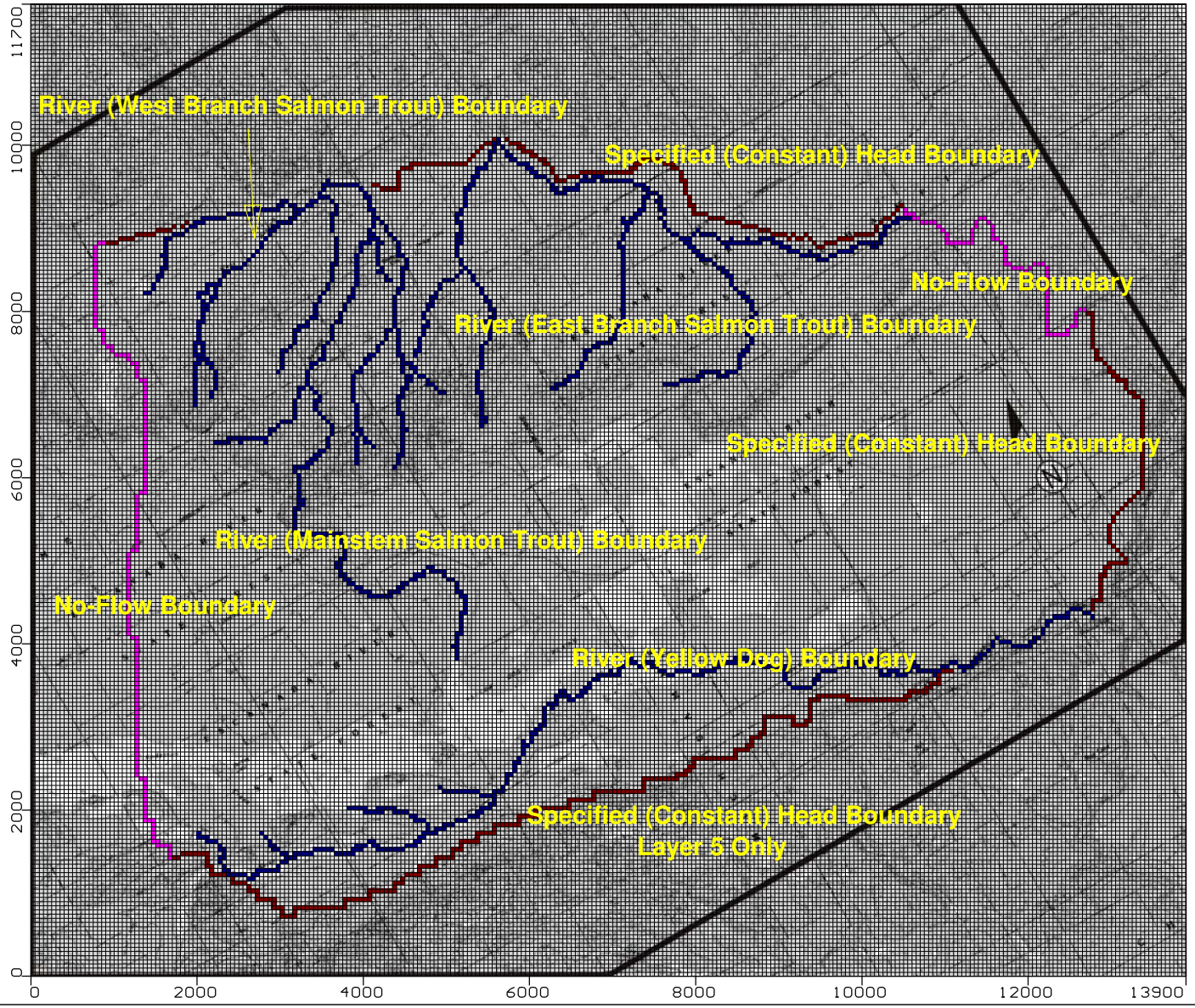


Figure 1. Generalized Model Domain, Grid and Boundary Conditions
Eagle Project, Marquette County, Michigan

Fletcher Driscoll & Associates, LLC

Note: Axes scales are in meters.

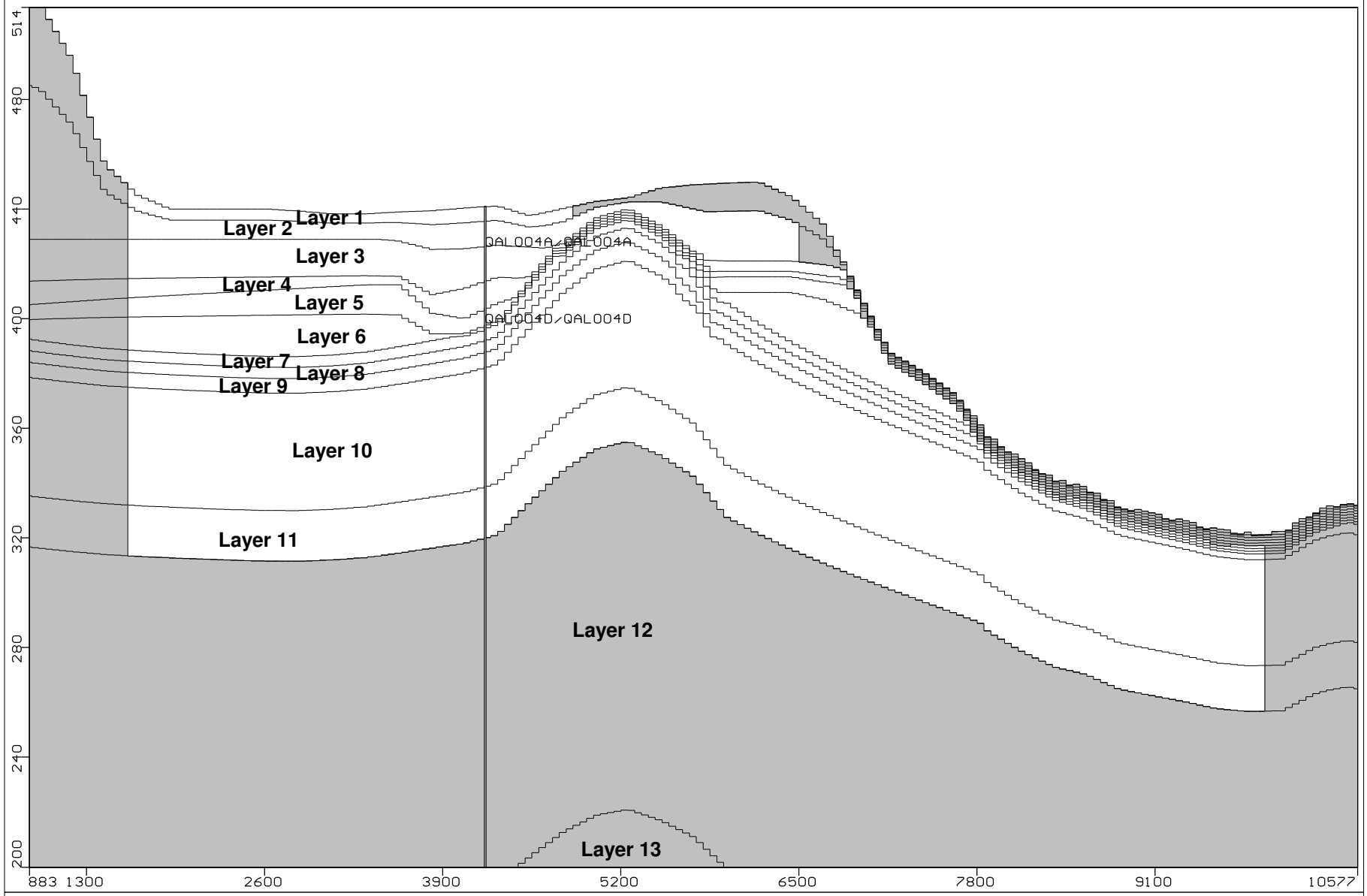


Figure 2. Cross Section through QAL004A/D -- Southwest to Northeast
Eagle Project, Marquette County, Michigan

Fletcher Driscoll & Associates, LLC

Note: Axes scales are in meters.

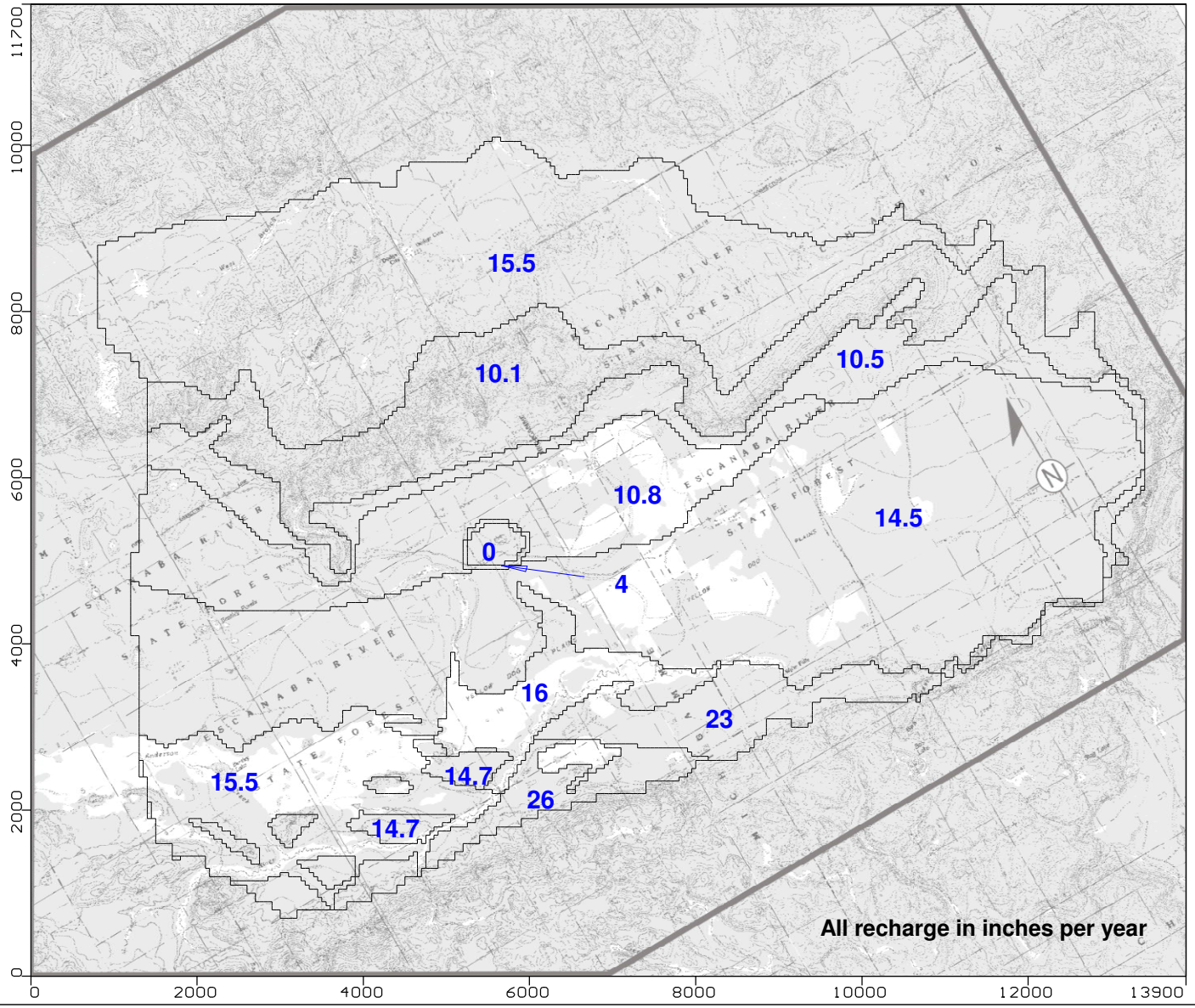


Figure 3. Recharge Assigned to Model Layer 1
Eagle Project, Marquette County, Michigan

Fletcher Driscoll & Associates, LLC

Figure 4. Comparison of Model Calculated Heads to Measured Heads

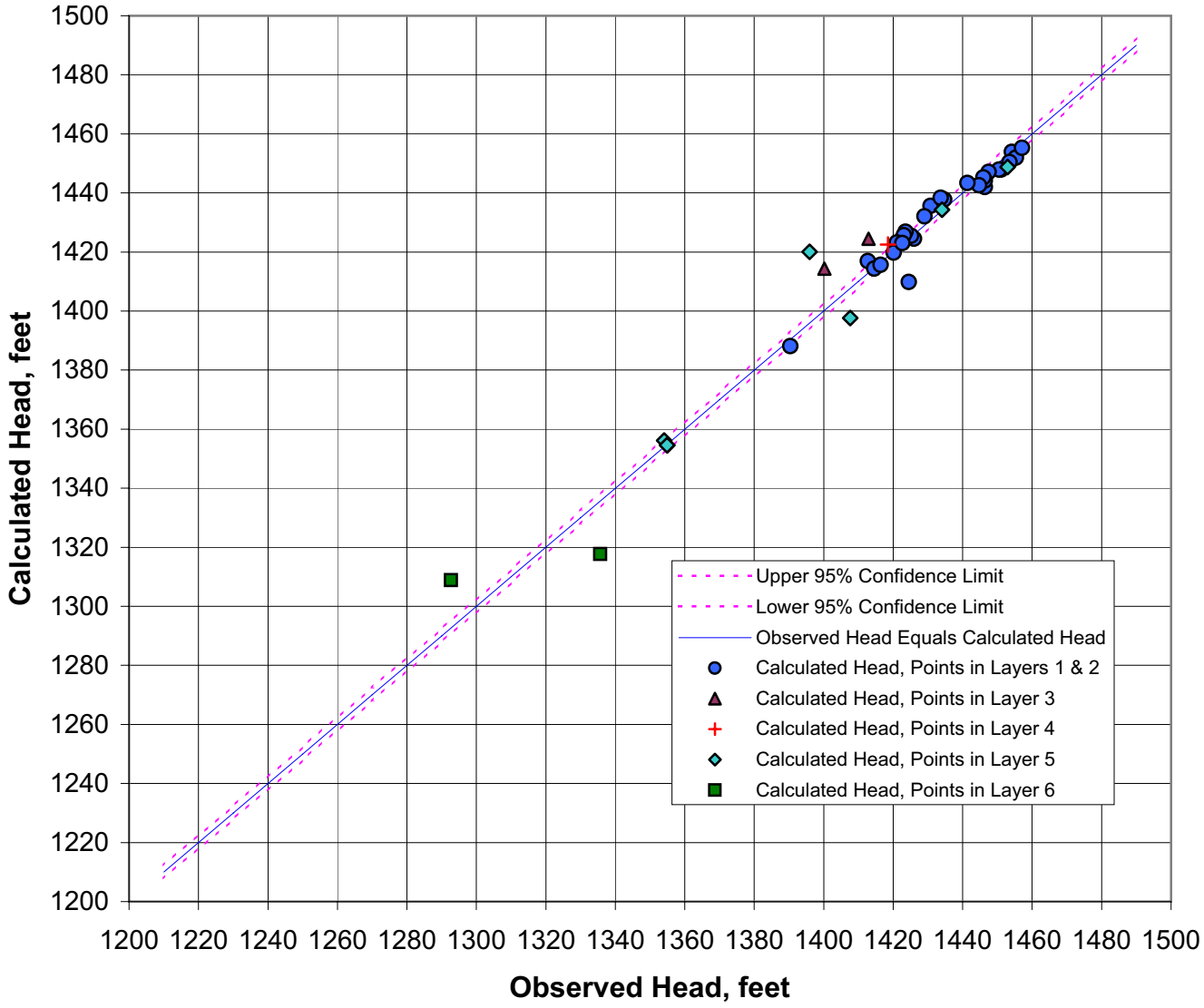


Figure 5. Distribution of Model Calibration Residuals

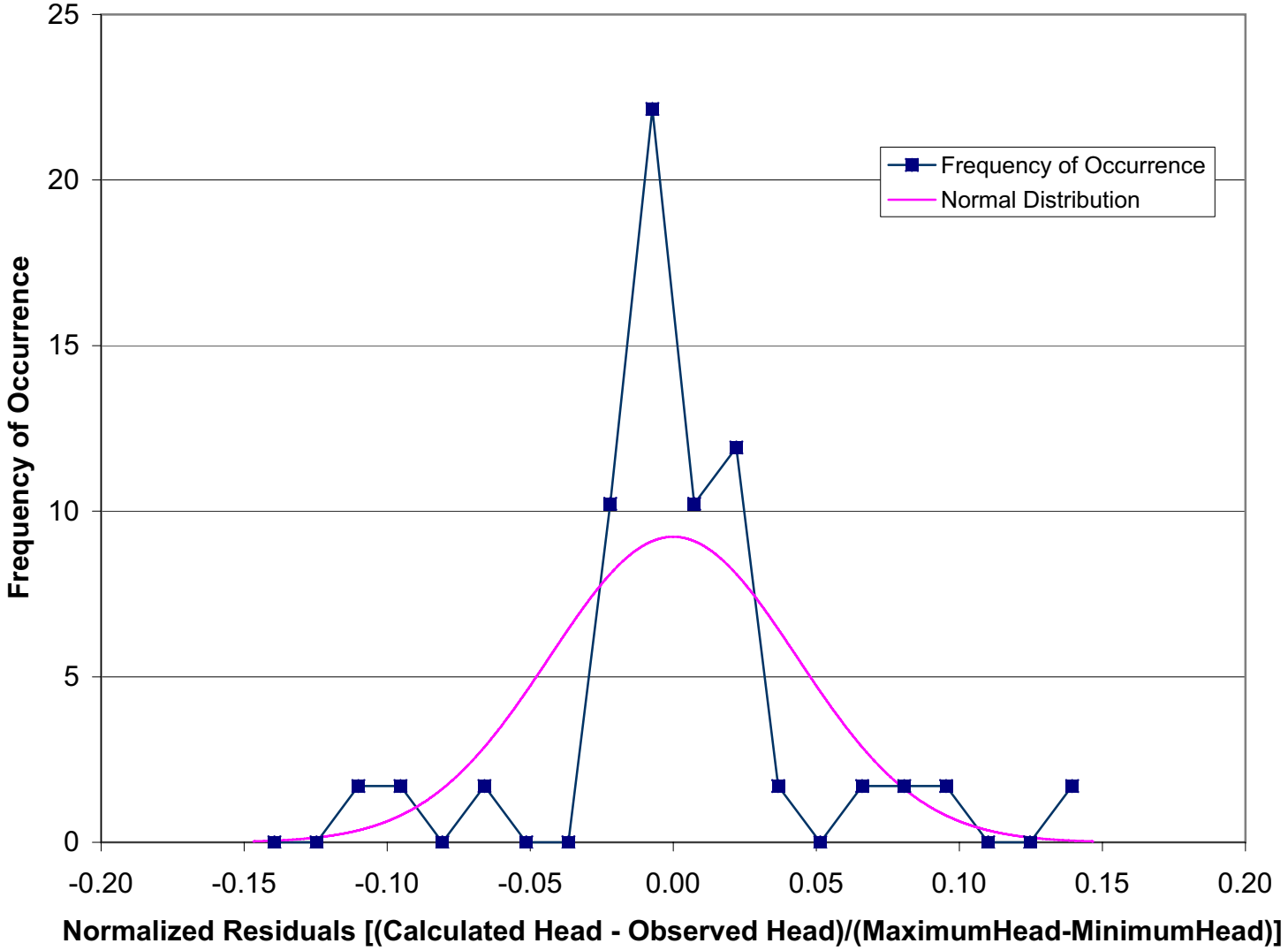


Figure 6. Simulated River Outflow by Groundwater Basin Compared to Stream Baseflow at Key Gauging Locations

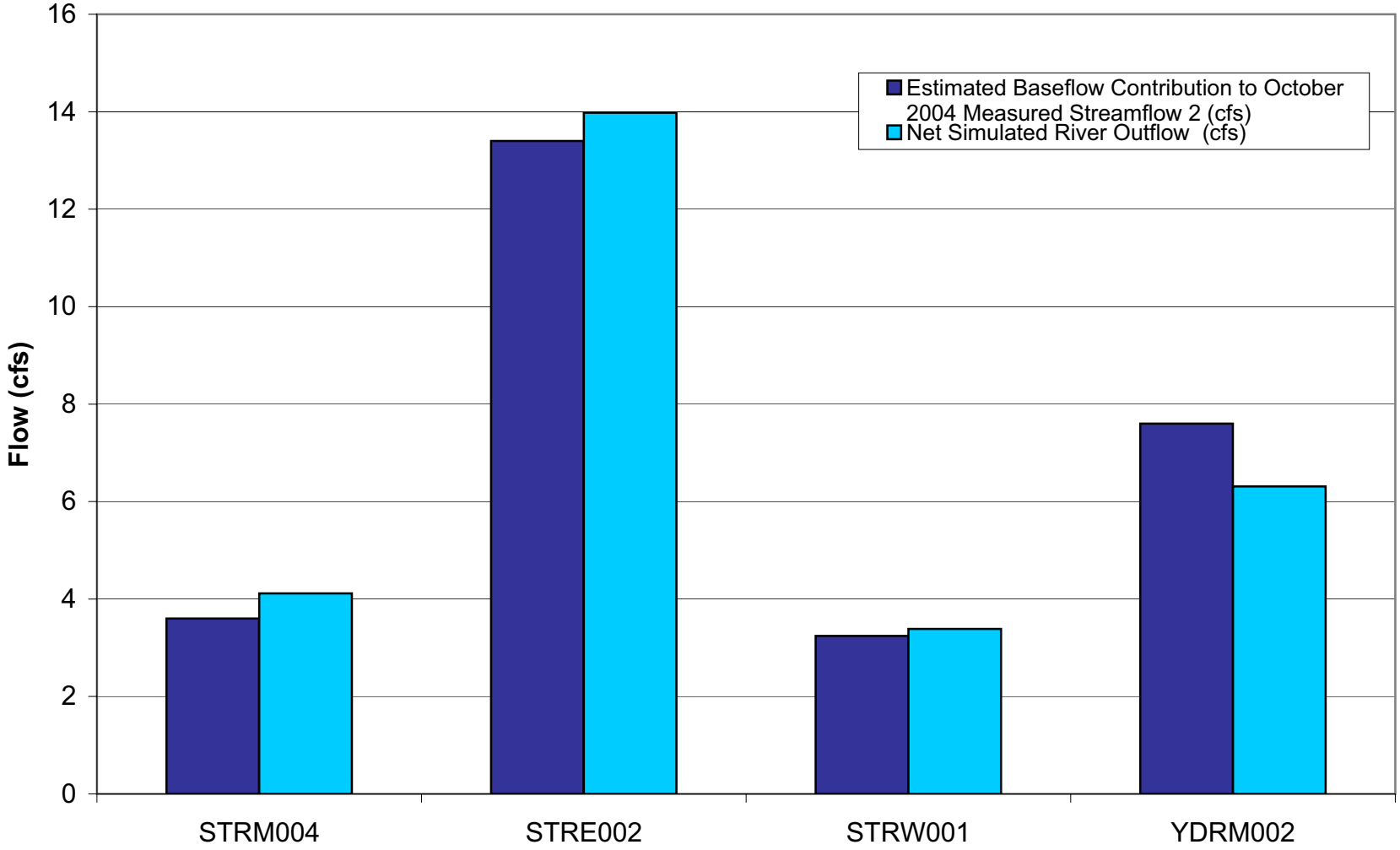
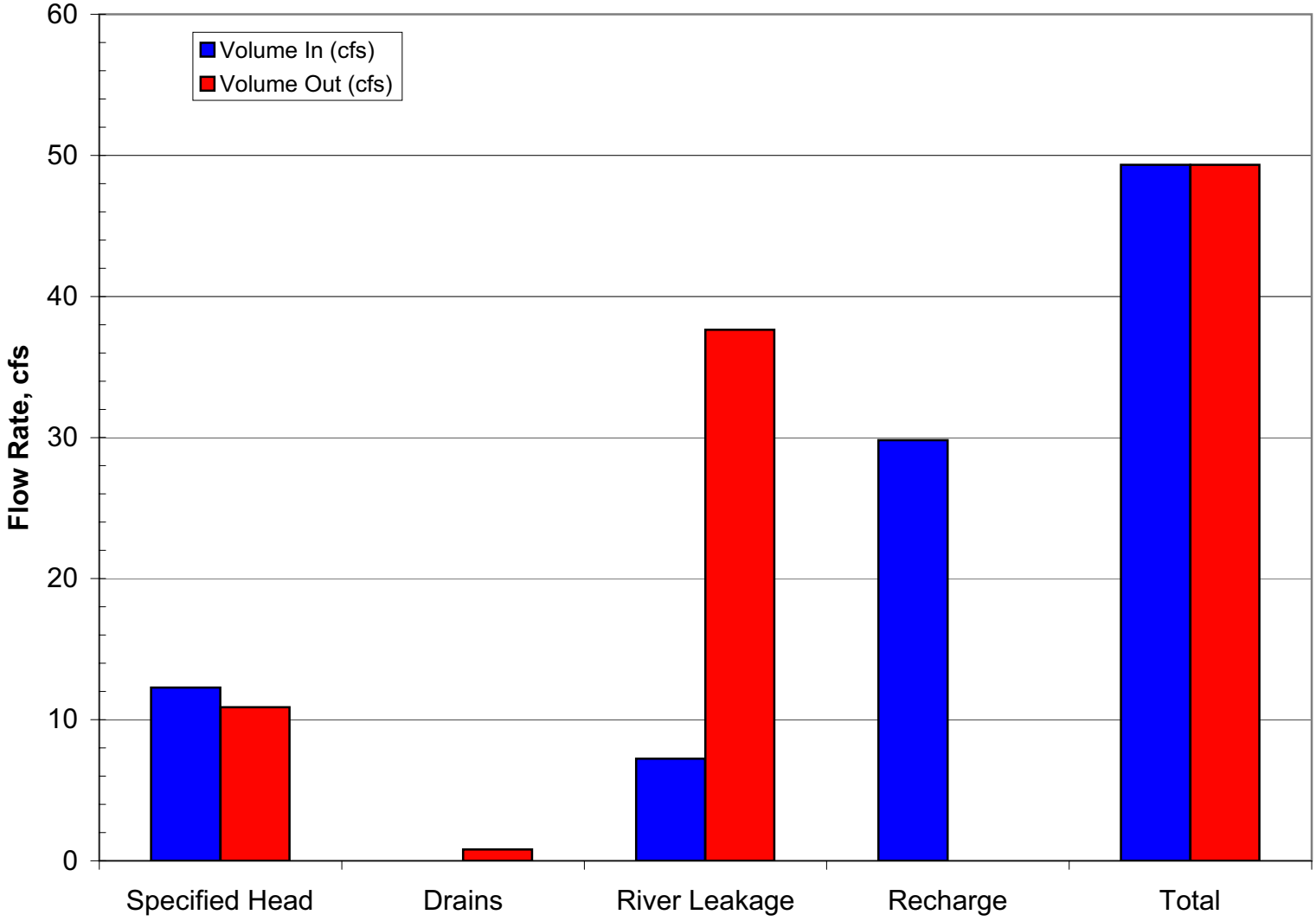


Figure 7. Model Mass Balance by Hydraulic Feature



Note: Axes scales are in meters.

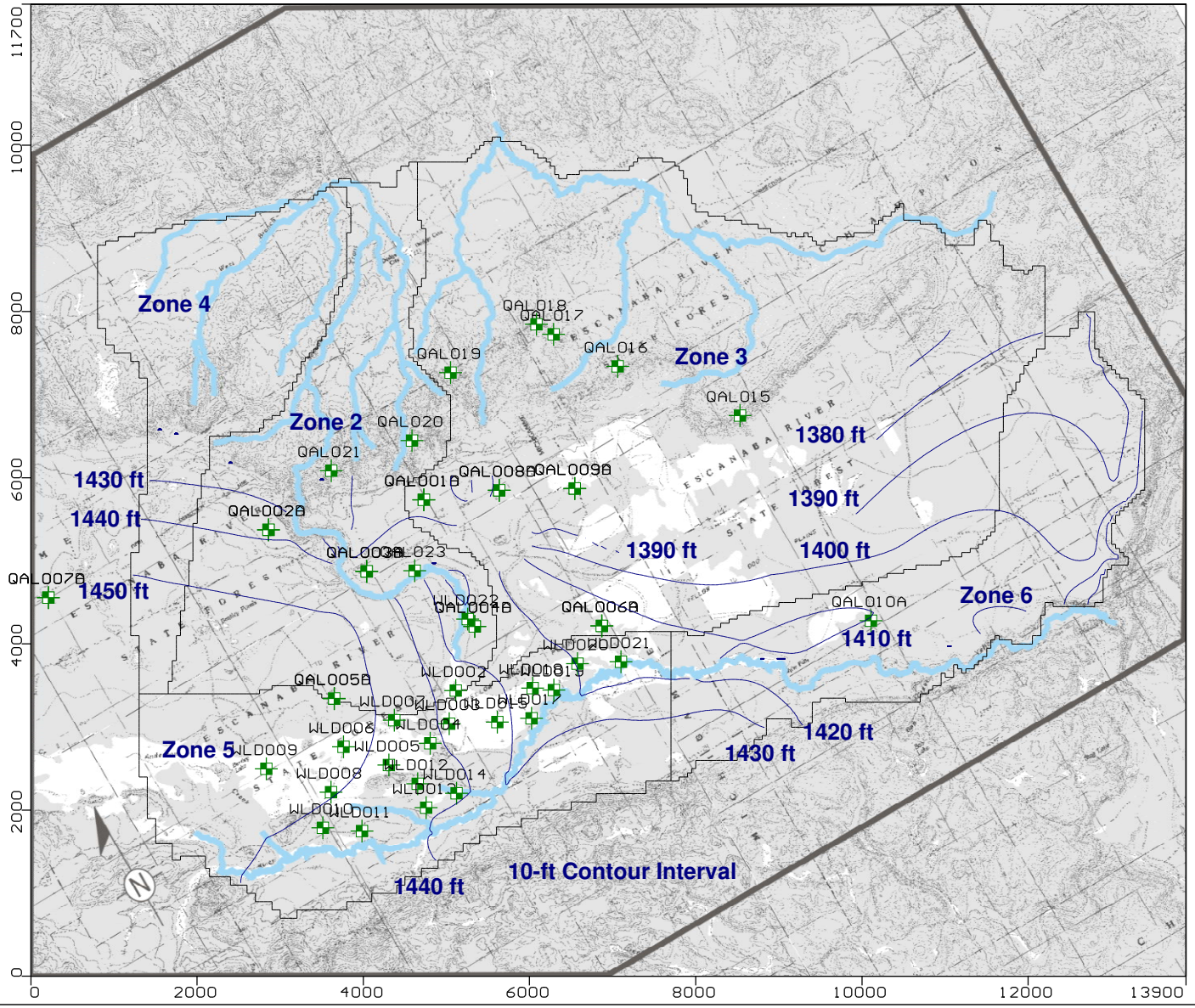


Figure 8. Model Equipotentials and Groundwater Divides -- Model Layer 2
Eagle Project, Marquette County, Michigan

Fletcher Driscoll & Associates, LLC

Note: Axes scales are in meters.

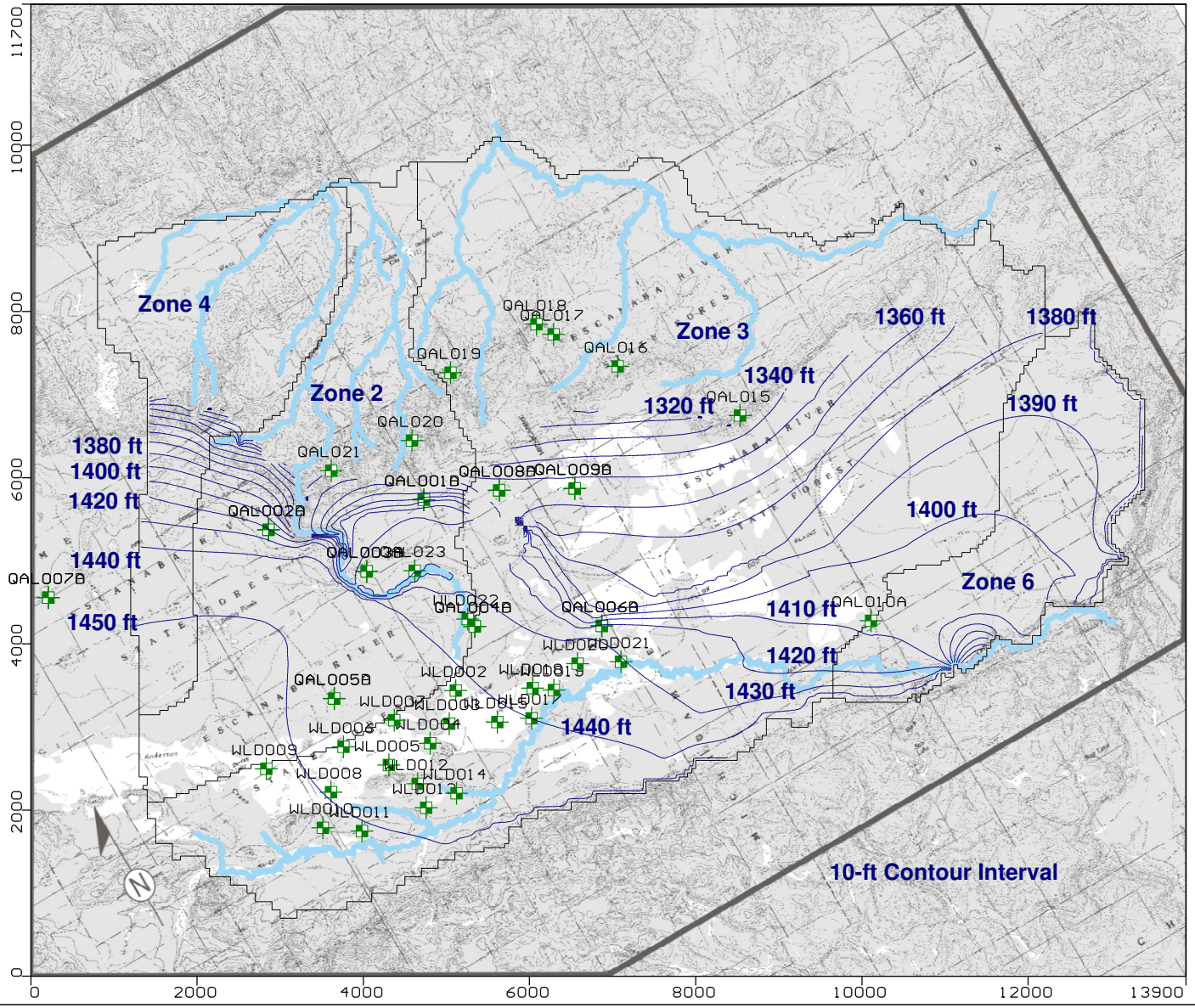


Figure 9. Model Equipotentials and Groundwater Divides -- Model Layer 5
Eagle Project, Marquette County, Michigan

Fletcher Driscoll & Associates, LLC

Figure 10. Sensitivity Analyses:
Normalized RMS Error and Net River Outflow
versus Relative Horizontal Hydraulic Conductivity

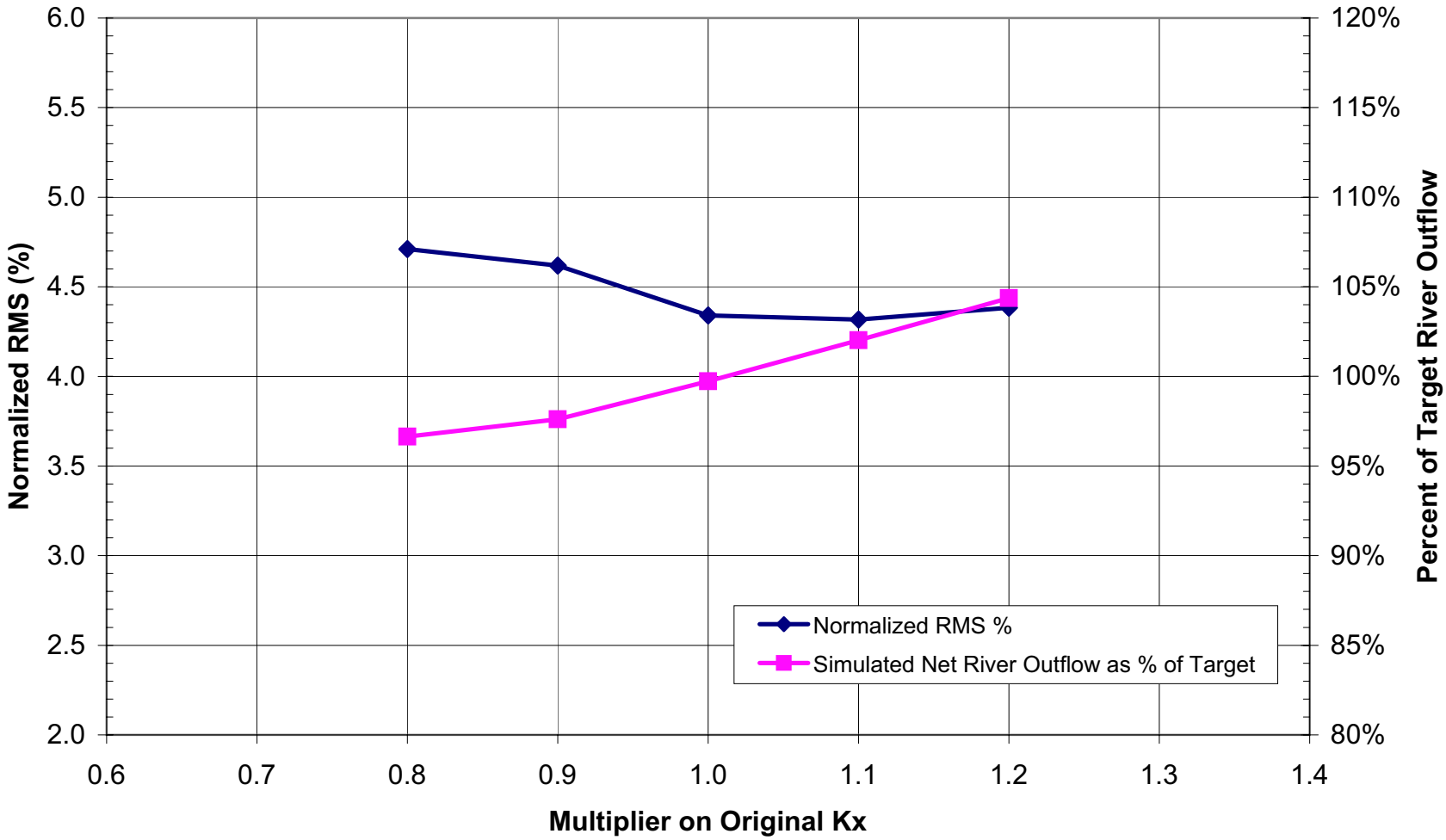


Figure 11. Sensitivity Analyses:
Normalized RMS Error and Net River Outflow
versus Relative Vertical Hydraulic Conductivity

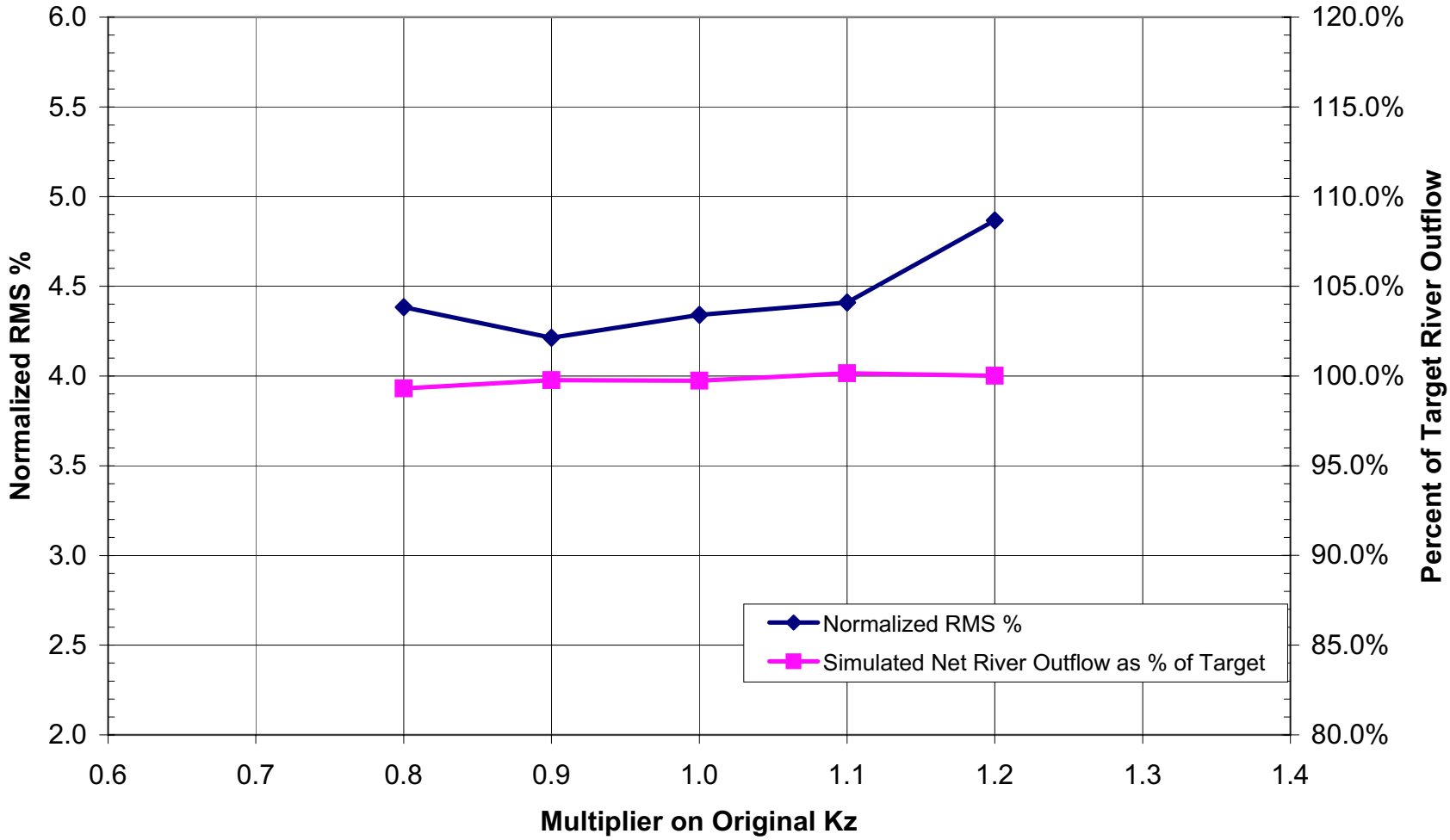


Figure 12. Sensitivity Analyses:
Normalized RMS Error and Net River Outflow
versus Relative Recharge

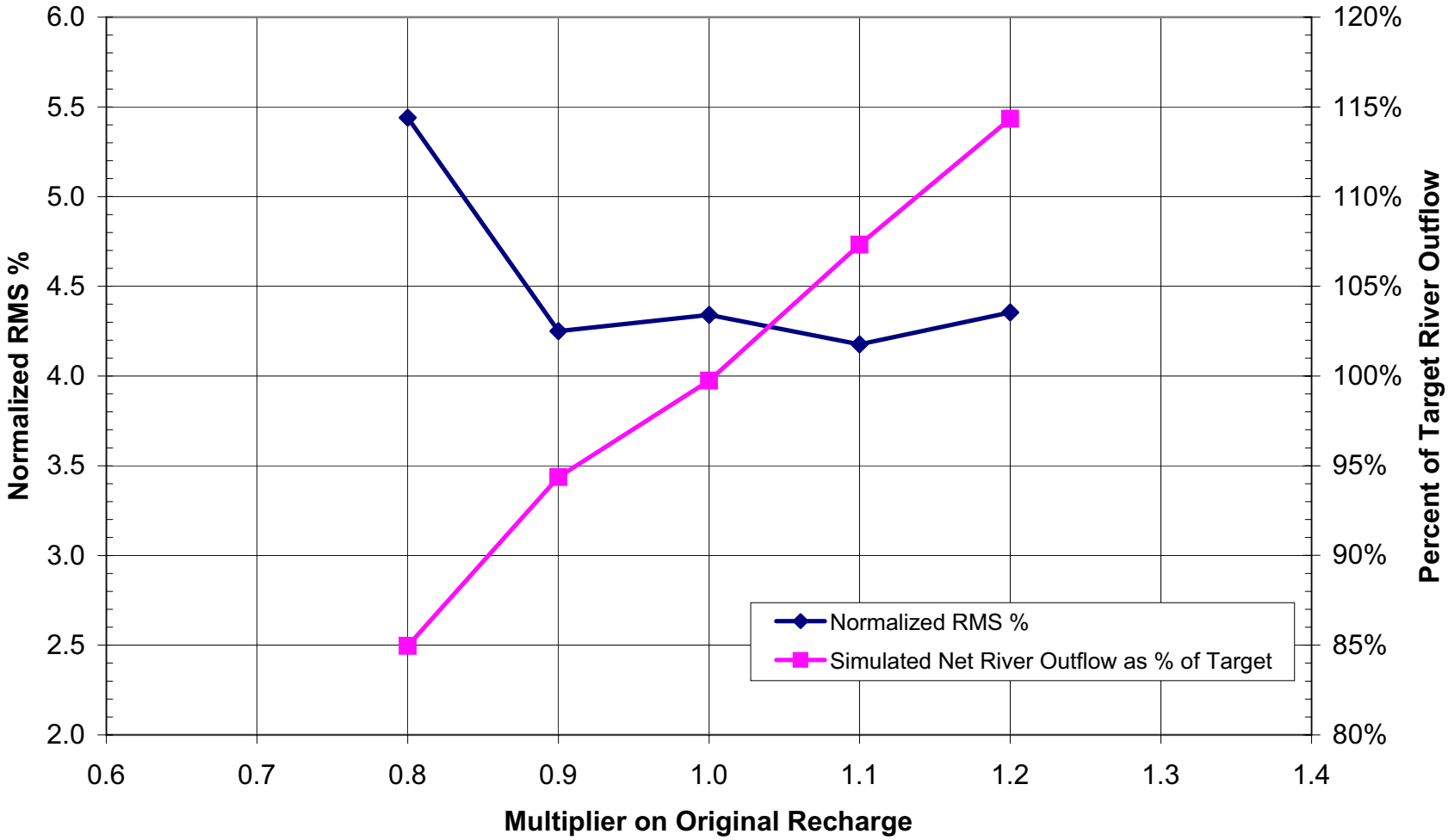
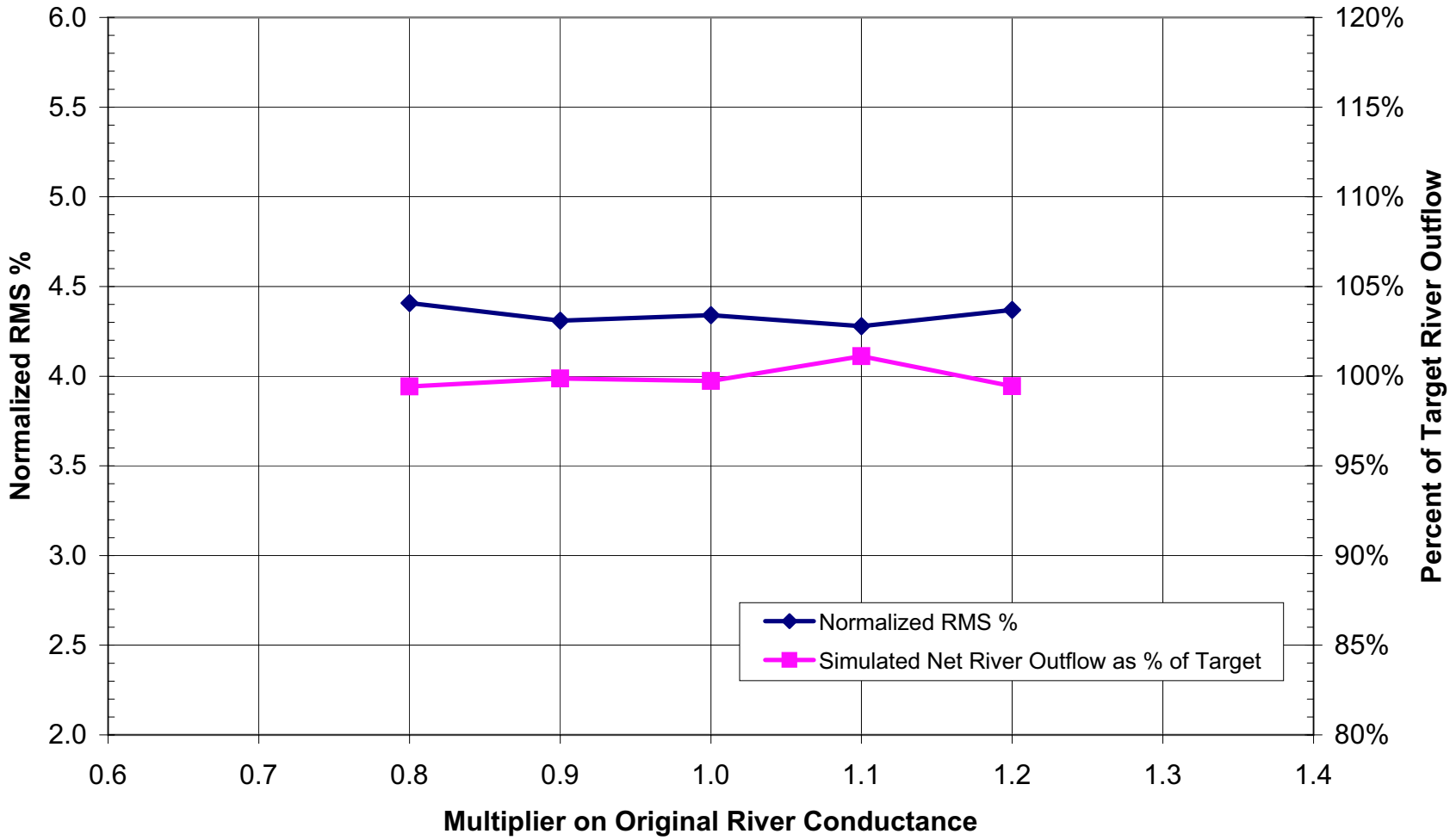


Figure 13. Sensitivity Analyses:
Normalized RMS Error and Net River Outflow
versus Relative River Conductance



TABLES

Baseline Groundwater Flow Model

Eagle Project
Marquette County, MI

Table 1. Summary of Baseline Model Inputs

MODELING SOFTWARE	
Modeling Software	Visual MODFLOW (for Windows), Version 4.0.0.131 -- Waterloo Hydrogeologic, Inc. MODFLOW-2000 for flow solutions
STRUCTURE AND TIME DISCRETIZATION	
Model Domain	Generalized domain as shown in Figure 1. Active domain within the general active domain varies by layer as described under layers below
Grid Spacing	50 x 50 meters (164 feet x 164 feet) throughout.
Active Layers	Layer 1 -- represents A zone; upper (ground) surface generally determined by inverse distance square interpolation from USGS DEM files (derived from USGS 7.5 min topos); inactive in north-northeastern two-thirds of the model below terrace slope where A zone is absent. Layer 2 -- represents A zone; upper surface assigned in model to provide vertical discretization at terrace slope; inactive in north-northeastern two-thirds of the model below terrace slope where A zone is absent. Layer 3 -- represents B zone; upper surface determined by natural neighbor interpolation from well log data; inactive in north-northeastern two-thirds of the model below terrace slope where B zone is absent. Layer 4 -- represents C zone; upper surface determined by natural neighbor interpolation from well log data; inactive in north-northeastern two-thirds of the model below terrace slope where C zone is absent. Layer 5 -- represents D zone; upper surface determined by natural neighbor interpolation from well log data; inactive in north-northeastern two-thirds of the model below terrace slope where D zone is absent. Layer 6 -- represents E/F zone; upper surface determined by natural neighbor interpolation from well log data; inactive in north-northeastern two-thirds of the model below terrace slope. Layers 7, 8 and 9 in south-southwestern area of domain -- represents upper weathered bedrock; uppermost surface determined by natural neighbor interpolation of bedrock contact from well log data, other surfaces assigned in model to provide vertical discretization in area downslope of terrace slope. Layers 7, 8 and 9 in north-northeastern area of domain -- represents coarse-textured till below terrace slope. Layers 10 and 11 -- weathered bedrock throughout the horizontal extent of the model domain; base of Layer 11 set at 280 feet (90 meters) below ground surface near QAL023; Layer 10 surface set arbitrarily in model for possible future use.
Layer Surface Adjustments	Some layer surface elevations were adjusted manually following interpolation to achieve a better representation of local conditions.
Inactive Layers	Layers 12 and 13 reserved for possible later use.
Layer Type	All layers set as MODFLOW type 3
Stress Periods	None; steady state simulation.
Time Period Represented	Average conditions represented by October - November 2004.

Table 1. Summary of Baseline Model Inputs

BOUNDARIES, FLUXES AND INITIAL CONDITIONS (HYDRAULIC AND PHYSICAL)	
North-northeastern	Specified head boundary based on nearby interpolated stream stage from topo sheet or based ground surface elevation and assuming a depth to water of approximately 3.3 feet (1 meter).
East-northeastern	No flow boundary based on topographic/watershed divide between Cedar River and Salmon Trout Riv Watersheds in the north and, in the south, a flow line boundary based on A-zone equipotentials defin in Stage 1 Study .
Southeastern	Specified head boundary based on interpolated elevation of nearby Yellow Dog River stage plus approximately 33 feet (10 meters).
Southern	No flow boundary coinciding with bedrock highland boundary, except in model layer 5 (D zone) and a short section flanking the Yellow Dog River where a specified head boundary is based on interpolated local river stage from topo; the specified head boundary in D zone set to 1448.6 to 1451.8 feet (441.5 to 442.5 meters) based on ground surface elevation in adjacent bedrock highland and known A-zone groundwater elevations.
Northwestern	No flow.
Recharge	Assigned based on general conductivity of surface and near-surface material type and topography as shown in Figure 4.
Rivers Represented	Main, East and West Branches Salmon Trout Creek, and Yellow Dog River.
River Bottom Elevations	Based on interpolation from elevation contours on USGS Topographic Sheets.
River Stage Elevations	Based on interpolation from elevation contours on USGS Topographic Sheets; calculated from average stream depths observed, generally ranging from 1 foot (0.3 meters) to 1.6 feet (0.5 meters), except in lower Yellow Dog River where stage height was set to 5 feet based on March-April 2005 data from USGS gauging station 04043275 on the Yellow Dog River.
River Conductances	Calculated assuming riverbed vertical hydraulic conductivity is 2 ft/day equal to vertical hydraulic conductivity of A-Zone sediments, average stream width of 6.5 feet (2 meters), streambed thickness of 1 foot (0.3 meters), and stream reach length digitized model cell. Portions of the lower Yellow Dog Riv assigned width of 8 feet (2.5 meters). Conductances adjusted during calibration.
Drains	Established at the locations of seep monitoring locations (QAL015, QAL016, QAL017, QAL018, QAL019, QAL020, QAL021) to represent major seeps along north-facing terrace slope. Head elevations set at elevations measured in piezometers in October/November 2004; drain conductance estimated at 1077 ft2/day (100 m2/day).
Initial Heads	Interpolated using the natural neighbor method from October/November 2004 groundwater elevation data from 39 wells/piezometers; model heads for final calibration based on initial model results.
Pumping Wells	None

Table 1. Summary of Baseline Model Inputs

HYDRAULIC AND PHYSICAL PARAMETERS	
Horizontal Hydraulic Conductivity (Kx, Ky)	Interpolated by natural neighbor method from Table 2; adjusted during calibration. Major wetland areas represented with values approximately an order of magnitude higher than surrounding materials and adjusted during calibration. K values assigned from adjacent layer(s) when unit generally represented by model layer is absent in the field. K values representing bedrock assigned value of 0.0057 ft/day throughout model based on slug test data (Golder, 2005).
Vertical Hydraulic Conductivity (Kz)	Interpolated by natural neighbor method from Table 1 in the interim report; adjusted during calibration. Major wetland areas represented with values approximately an order of magnitude higher than surrounding materials and adjusted during calibration. Bedrock value assigned as 0.0057 ft/day (equal to horizontal value).
Specific Storage	4.9E-5 per foot (1.6E-4 per meter) based on alluvium pumping test results for Layers 1-6 throughout model and 7-9 in south-southwest area. 3.1E-6 per foot (1E-5 per meter) based on slug testing for Layers 7-9 in north-northeast area and Layers 10 and 11 throughout domain.
Specific Yield	0.05 based on pumping test data for Layers 1-3 and 5. 0.01 estimated based on literature and experience for Layers 4 and 6-11.
Effective Porosity	0.12 based on literature and experience for Layers 1-3 and 5. 0.05 based on literature and experience for all other layers.
Total Porosity	Variable assignments based on literature values; not required for flow simulations.
ZONE BUDGET	
Zone 1	Used only in preliminary model runs; not used in final model.
Zone 2	Represents Main Branch of the Salmon Trout River; based on delineation of subwatersheds by model particle tracking and analysis of velocity vectors.
Zone 3	Represents East Branch of the Salmon Trout River; based on delineation of subwatersheds by model particle tracking and analysis of velocity vectors.
Zone 4	Represents West Branch of the Salmon Trout River; based on delineation of subwatersheds by model particle tracking and analysis of velocity vectors.
Zone 5	Represents upper Yellow Dog River basin; based on delineation of subwatersheds by model particle tracking and analysis of velocity vectors.
Zone 6	Represents lower Yellow Dog River basin; based on delineation of subwatersheds by model particle tracking and analysis of velocity vectors.

Table 1. Summary of Baseline Model Inputs

SOLUTION APPROACH	
WHS Solver	Waterloo Hydrogeologic Solver -- Bi-Conjugate Gradient Stabilized routine Used during preliminary calibration
PCG2 Solver	Preconditionded Conjugate-Gradient Solver Used during final calibration and sensitivity runs Head-change criterion for convergence = 0.1 m (for overall solver convergence) Residual criterion for convergence = 8640 m3/day (for inner iteration convergence) Damping factor for outer iteration = 0.8 to stabilize solution Cholesky preconditioning method Relaxation parameter = 1 (standard)

Table 2. Hydraulic Parameters Used in Groundwater Flow Model

Location	Zone	Tested or Screened Interval Top (ft bgs)	Tested or Screened Interval Btm (ft bgs)	Tested or Screened Interval Top (ft > amsl)	Tested or Screened Interval Btm (ft > amsl)	Horizontal K value (ft/day)	Basis for Horiz. K Value	Vertical K value (ft/day)	Basis for Vert. K Value	X coord (Easting)	Y coord (Northing)	Surf. Elev. (feet)
QAL002	A	50	60	1429.54	1419.54	2.5E+01	SC	8.8E-01	NeuAvg	430171.70	5178905.70	1479.54
QAL002	A	56	58	1423.54	1421.54	7.9E+00	LabC	2.8E-01	NeuAvg	430171.70	5178905.70	1479.54
QAL004	A	15	15	1436.09	1436.09	6.7E+01	Sieve	2.4E+00	NeuAvg	431726.40	5176650.00	1451.09
QAL004	A	45	55	1406.09	1396.09	2.0E+01	SC	7.3E-01	NeuAvg	431726.40	5176650.00	1451.09
QAL005	A	15	25	1444.74	1434.74	3.5E+01	SC	1.3E+00	NeuAvg	429828.34	5176753.00	1459.74
QAL006	A	15	25	1408.92	1398.92	6.1E+01	SC	2.2E+00	NeuAvg	433051.60	5175884.60	1423.92
QAL006	A	23	23	1400.92	1400.92	2.7E+01	Sieve	9.6E-01	NeuAvg	433051.60	5175884.60	1423.92
QAL007	A	50	50	1429.34	1429.34	3.5E+01	Sieve	1.3E+00	NeuAvg	427474.85	5179537.84	1479.34
QAL008	A	10	10	1458.19	1458.19	5.3E+01	Sieve	1.9E+00	NeuAvg	432807.83	5177916.14	1468.19
QAL008	A	30	30	1438.19	1438.19	6.1E+01	Sieve	2.2E+00	NeuAvg	432807.83	5177916.14	1468.19
QAL008	A	84	84	1384.19	1384.19	1.3E-01	Sieve	4.6E-03	NeuAvg	432807.83	5177916.14	1468.19
QAL008	A	88	88	1379.92	1379.92	3.6E+01	Sieve	1.3E+00	NeuAvg	432809.91	5177916.36	1467.92
QAL009	A	37	37	1420.41	1420.41	3.9E+01	Sieve	1.4E+00	NeuAvg	433605.26	5177475.05	1457.41
QAL009	A	102	102	1355.35	1355.35	3.7E+01	Sieve	1.3E+00	NeuAvg	433606.06	5177477.00	1457.35
QAL010	A	43	43	1401.55	1401.55	3.5E+01	Sieve	1.3E+00	NeuAvg	435880.37	5174304.51	1444.55
QAL011	A	11	21	1441.31	1431.31	4.9E+01	PT	1.7E+00	NeuAvg	431863.24	5176713.14	1452.31
QAL011	A	39	39	1413.31	1413.31	3.7E+01	Sieve	1.3E+00	NeuAvg	431863.24	5176713.14	1452.31
QAL012	A	11	21	1441.30	1431.30	4.7E+01	PT	2.1E+00	PTN	431855.31	5176709.08	1452.30
QAL013	A	11	21	1441.88	1431.88	4.4E+01	PT	2.0E+00	PTN	431845.51	5176703.53	1452.88
QAL013	A	17	17	1435.88	1435.88	5.6E+01	Sieve	2.0E+00	NeuAvg	431845.51	5176703.53	1452.88
QAL013	A	43	43	1409.88	1409.88	2.8E+01	Sieve	1.0E+00	NeuAvg	431845.51	5176703.53	1452.88
QAL014	A	11	21	1439.57	1429.57	6.1E+01	PT	2.0E+00	PTN	431825.65	5176692.28	1450.57
QAL014	A	37	37	1413.57	1413.57	2.5E+01	Sieve	8.9E-01	NeuAvg	431825.65	5176692.28	1450.57
QAL001	A/B	50	65	1412.92	1397.92	1.8E+00	SC	6.5E-02	NeuAvg	431967.00	5178276.00	1462.92
QAL001	A/B	60	60	1402.81	1402.81	1.3E-01	Sieve	4.8E-03	NeuAvg	431968.50	5178274.60	1462.81
QAL004	A/B	52	52	1399.09	1399.09	1.3E-01	Sieve	4.8E-03	NeuAvg	431726.40	5176650.00	1451.09

Table 2. Hydraulic Parameters Used in Groundwater Flow Model

Location	Zone	Tested or Screened Interval Top (ft bgs)	Tested or Screened Interval Btm (ft bgs)	Tested or Screened Interval Top (ft > amsl)	Tested or Screened Interval Btm (ft > amsl)	Horizontal K value (ft/day)	Basis for Horiz. K Value	Vertical K value (ft/day)	Basis for Vert. K Value	X coord (Easting)	Y coord (Northing)	Surf. Elev. (feet)
QAL001	B	70	70	1392.81	1392.81	8.0E+00	Sieve	2.9E-01	NeuAvg	431968.50	5178274.60	1462.81
QAL003	B	20	30	1416.95	1406.95	7.1E-02	SC	2.5E-03	NeuAvg	430939.70	5177877.20	1436.95
QAL003	B	28	30	1408.48	1406.48	5.4E-03	LabF	1.9E-04	NeuAvg	430940.40	5177878.90	1436.48
QAL003	B	43	48	1393.48	1388.48	1.7E-01	SC	6.2E-03	NeuAvg	430940.40	5177878.90	1436.48
QAL005	B	75	75	1384.59	1384.59	2.0E+00	Sieve	7.2E-02	NeuAvg	429829.40	5176754.30	1459.59
QAL006	B	71	71	1353.33	1353.33	1.7E+01	Sieve	6.0E-01	NeuAvg	433050.60	5175886.30	1424.33
QAL006	B	75	80	1349.33	1344.33	6.3E-01	SC	2.3E-02	NeuAvg	433050.60	5175886.30	1424.33
QAL007	B	75	75	1404.34	1404.34	5.0E+00	Sieve	1.8E-01	NeuAvg	427474.85	5179537.84	1479.34
QAL013	B	57	57	1395.82	1395.82	1.3E-01	Sieve	4.6E-03	NeuAvg	431844.05	5176702.76	1452.82
QAL013	B	67	69	1385.82	1383.82	1.0E-02	LabF	3.6E-04	NeuAvg	431844.05	5176702.76	1452.82
QAL023	B	16	16	1405.39	1405.39	1.3E-01	Sieve	4.6E-03	NeuAvg	431441.65	5177593.25	1421.39
QAL023	B	28	28	1405.39	1405.39	1.2E-01	SlugG	4.3E-03	NeuAvg	431441.65	5177593.25	1421.39
QAL023	B	34	34	1393.39	1393.39	1.2E-01	SlugG	4.3E-03	NeuAvg	431441.65	5177593.25	1421.39
QAL002	C	118	120	1361.21	1359.21	5.7E-05	LabF	2.0E-06	NeuAvg	430171.50	5178907.60	1479.21
QAL004	C	98	100	1352.94	1350.94	5.1E-03	LabF	1.8E-04	NeuAvg	431726.90	5176651.20	1450.94
QAL008	C	107	109	1360.92	1358.92	8.5E-05	LabF	3.0E-06	NeuAvg	432809.91	5177916.36	1467.92
QAL014	C	108	110	1342.38	1340.38	6.2E-05	LabF	2.2E-06	NeuAvg	431824.25	5176691.45	1450.38
QAL001	D	80	85	1382.81	1377.81	3.5E-01	SC	1.3E-02	NeuAvg	431968.50	5178274.60	1462.81
QAL002	D	135	140	1344.21	1339.21	<7.0E-02	SC	<2.5E-03	NeuAvg	430171.50	5178907.60	1479.21
QAL002	D	136	136	1343.21	1343.21	6.7E+00	Sieve	2.4E-01	NeuAvg	430171.50	5178907.60	1479.21
QAL004	D	140	145	1313.94	1299.94	5.5E+01	PT	2.2E+00	NeuAvg	431726.90	5176651.20	1450.94
QAL004	D	140	145	1310.94	1305.94	2.6E+01	SC	9.3E-01	NeuAvg	431726.90	5176651.20	1450.94
QAL004	D	142	142	1308.94	1308.94	2.0E+00	Sieve	7.2E-02	NeuAvg	431726.90	5176651.20	1450.94
QAL005	D	121	121	1338.59	1338.59	8.0E+01	Sieve	2.9E+00	NeuAvg	429829.40	5176754.30	1459.59
QAL005	D	123	128	1336.59	1331.59	1.3E+02	SC	4.6E+00	NeuAvg	429829.40	5176754.30	1459.59
QAL007	D	177	177	1302.34	1302.34	9.0E+01	Sieve	3.2E+00	NeuAvg	427474.85	5179537.84	1479.34
QAL008	D	117	117	1350.92	1350.92	4.9E+01	Sieve	1.8E+00	NeuAvg	432809.91	5177916.36	1467.92
QAL009	D	145	145	1312.35	1312.35	4.8E+01	Sieve	1.7E+00	NeuAvg	433606.06	5177477.00	1457.35

Table 2. Hydraulic Parameters Used in Groundwater Flow Model

Location	Zone	Tested or Screened Interval Top (ft bgs)	Tested or Screened Interval Btm (ft bgs)	Tested or Screened Interval Top (ft > amsl)	Tested or Screened Interval Btm (ft > amsl)	Horizontal K value (ft/day)	Basis for Horiz. K Value	Vertical K value (ft/day)	Basis for Vert. K Value	X coord (Easting)	Y coord (Northing)	Surf. Elev. (feet)
QAL011	D	140	145	1312.40	1307.40	4.0E+01	PT	1.5E+00	NeuAvg	431865.00	5176714.01	1452.40
QAL012	D	140	145	1312.42	1307.42	3.3E+01	PT	1.6E+00	NeuAvg	431854.17	5176708.42	1452.42
QAL013	D	121	121	1331.82	1331.82	2.7E+01	Sieve	9.7E-01	NeuAvg	431844.05	5176702.76	1452.82
QAL013	D	140	145	1312.82	1307.82	3.9E+01	PT	1.6E+00	NeuAvg	431844.05	5176702.76	1452.82
QAL014	D	137	137	1313.38	1313.38	6.4E+01	Sieve	2.3E+00	NeuAvg	431824.25	5176691.45	1450.38
QAL014	D	140	145	1310.38	1305.38	3.2E+01	PT	1.6E+00	NeuAvg	431824.25	5176691.45	1450.38
QAL007	E	197	197	1282.45	1282.45	1.3E-01	Sieve	4.8E-03	NeuAvg	427473.52	5179537.66	1479.45
QAL009	E	157	157	1300.35	1300.35	5.7E-05	Sieve	2.0E-06	NeuAvg	433606.06	5177477.00	1457.35
QAL009	E	163	163	1294.35	1294.35	4.0E+00	Sieve	1.4E-01	NeuAvg	433606.06	5177477.00	1457.35
QAL009	E	185	185	1272.35	1272.35	5.0E+00	Sieve	1.8E-01	NeuAvg	433606.06	5177477.00	1457.35
QAL009	E	238	238	1219.35	1219.35	1.3E-01	Sieve	4.6E-03	NeuAvg	433606.06	5177477.00	1457.35
QAL009	E	254	254	1203.35	1203.35	3.3E+01	Sieve	1.2E+00	NeuAvg	433606.06	5177477.00	1457.35
QAL010	E	134	134	1310.55	1310.55	2.0E+00	Sieve	7.1E-02	NeuAvg	435880.37	5174304.51	1444.55
QAL013	E	144	144	1308.82	1308.82	4.0E+00	Sieve	1.4E-01	NeuAvg	431844.05	5176702.76	1452.82
QAL010	F	102	102	1342.55	1342.55	4.9E+01	Sieve	1.8E+00	NeuAvg	435880.37	5174304.51	1444.55
QAL010	F	178	178	1266.55	1266.55	6.4E+01	Sieve	2.3E+00	NeuAvg	435880.37	5174304.51	1444.55
04EA054A	BdrkA	42	80	1384.77	1384.77	1.8E-02	BRD			431439.58	5177590.12	1418.77
04EA054B	BdrkB	80	100	1376.77	1338.77	2.7E-02	BRD			431439.58	5177590.12	1418.77
04EA054B	BdrkB	80	100	1338.77	1318.77	8.7E-02	BRQ			431439.58	5177590.12	1418.77
04EA054C2	BdrkC	100	160	1338.77	1318.77	2.4E-01	BRD			431439.58	5177590.12	1418.77
04EA054D	BdrkD	160	280	1318.77	1258.77	2.6E-02	BRD			431439.58	5177590.12	1418.77
04EA054D	BdrkD	160	280	1258.77	1138.77	7.4E-02	BRQ			431439.58	5177590.12	1418.77
04EA047	Bdrk	46	331	TBP	TBP	6.0E-03	BRSP			TBP	TBP	TBP
04EA073	Bdrk	51	261	TBP	TBP	5.1E-03	BRSP			TBP	TBP	TBP
04EA083	Bdrk	51	261	TBP	TBP	1.5E-02	BRSP			TBP	TBP	TBP
04EA084	Bdrk	50	331	TBP	TBP	3.0E-03	BRSP			TBP	TBP	TBP

Table 2. Hydraulic Parameters Used in Groundwater Flow Model

Location	Zone	Tested or Screened Interval Top (ft bgs)	Tested or Screened Interval Btm (ft bgs)	Tested or Screened Interval Top (ft > amsl)	Tested or Screened Interval Btm (ft > amsl)	Horizontal K value (ft/day)	Basis for Horiz. K Value	Vertical K value (ft/day)	Basis for Vert. K Value	X coord (Easting)	Y coord (Northing)	Surf. Elev. (feet)
04EA054E	BdrkE	280	520	1258.77	1138.77	6.7E-03	BRD			431439.58	5177590.12	1418.77
04EA054E	BdrkE	280	520	1138.77	898.77	6.0E-02	BRQ			431439.58	5177590.12	1418.77
04EA047	Bdrk	331	661	TBP	TBP	3.8E-05	BRSP			TBP	TBP	TBP
04EA047	Bdrk	661	880	TBP	TBP	2.1E-05	BRSP			TBP	TBP	TBP
04EA073	Bdrk	261	491	TBP	TBP	5.4E-04	BRSP			TBP	TBP	TBP
04EA073	Bdrk	491	874	TBP	TBP	4.1E-05	BRSP			TBP	TBP	TBP
04EA083	Bdrk	261	541	TBP	TBP	1.5E-05	BRSP			TBP	TBP	TBP
04EA083	Bdrk	541	787	TBP	TBP	1.8E-04	BRSP			TBP	TBP	TBP
04EA084	Bdrk	331	991	TBP	TBP	2.7E-03	BRSP			TBP	TBP	TBP

Notes:

Bdrk	Bedrock
bgs	Below Ground Surface
amsl	Above Mean Sea Level
TBP	To Be Provided for Final Interim Report

Basis Codes:

LabC	K value based on constant-head laboratory permeability test
LabF	K value based on falling-head laboratory permeability test
Sieve	K value based on comparison of grain-size distribution with similar grain size distribution of sample with known or calculated K value
PT	K value based on results of QAL011A and QAL011D pumping tests
SC	K value based on FDA analysis of data from brief specific capacity tests done by North Jackson
BRD	K value based on analysis of time-drawdown data from North Jackson specific capacity testing of bedrock boring
BRQ	K value based on analysis of specific capacity data from North Jackson specific capacity testing of bedrock boring
SlugG	K value based on slug testing of alluvium by Golder
BRSP	K value based on packer/slug testing of bedrock by Golder
PTN	Based on anisotropy ratio calculated from Neuman analysis of pumping test data from this well
NeuAvg	Based on average anisotropy ratio calculated from all Neuman analyses of A-zone pumping test data

Table 3. Simulated River Outflow Compared to Stream Baseflow at Key Gauging Stations

Net Simulated River Outflow

Gauge Location	Corresponding Model Zone[1]	October 2004 Measured Streamflow (cfs)	Estimated Baseflow Contribution to October 2004 Measured Streamflow[2] (cfs)	Estimated Baseflow as a Percent of Measured Flow	Total Model Calculated River Outflow (cfs)	Model Calculated River Loss to Aquifer (cfs)	Net Simulated River Outflow (cfs)
STRM004	2	5.1	3.6	71%	6.6	2.5	4.1
STRE002	3	14.0	13.4	96%	15.7	1.7	14.0
STRW001	4	3.9	3.2 [3]	83%	4.1	0.7	3.4
YDRM002	5	9.1	7.6	84%	8.6	2.3	6.3

Net Simulated River Outflow as a Percent of Baseflow

Gauge Location	Corresponding Model Zone[1]	Estimated Baseflow Contribution to October 2004 Measured Streamflow (cfs)	Net Simulated River Outflow (cfs)	Net Simulated River Outflow Percent of Baseflow Flow
STRM004	2	3.6	4.1	114%
STRE002	3	13.4	14.0	104%
STRW001	4	3.2 [3]	3.4	104%
YDRM002	5	7.6	6.3	83%
Total		27.84	27.79	

Note:

1. No gauging station is available for the lower reach of the Yellow Dog River so no comparison can be made to model Zone 6. Thus, Zone 6 data are not reported.
2. Baseflow contribution to October 2004 measured streamflow determined by North Jackson Company using standard manual hydrograph separation.
3. For model calibration, the percent baseflow contribution to October 2004 measured streamflow in the West Branch of the Salmon Trout River is assumed to be the average of the Main and East Branches of the Salmon Trout River.

APPENDIX D

Parameters and Analytical Methods

Appendix D
Parameters and Analytical Methods
Surface Water Short List
Eagle Project

Parameter	Analytical Method
Metals/Inorganics	
Iron, Total	EPA-200.7/6010B
Arsenic, Total	EPA-200.8/6020
Barium, Total	EPA-200.8/6020
Copper, Total	EPA-200.8/6020
Manganese, Total	EPA-200.8/6020
Nickel, Total	EPA-200.8/6020
Mercury, Total	EPA-1631E
Major Anions	
Alkalinity, Bicarbonate	310.1/SM 2320 B
Alkalinity, Carbonate	310.1/SM 2320 B
Chloride	325.2/4500-CL E
Nitrogen, Ammonia	350.1/4500 NH3G
Nitrogen, Nitrate	353.2/4500 NO3F
Nitrogen, Nitrite	EPA-353.2 or 354.1/4500 NO2B
Sulfate	EPA-375.4/9038
Major Cations	
Calcium, Dissolved	EPA-200.7/6010B
Potassium, Dissolved	EPA-200.7/6010B
Magnesium, Dissolved	EPA-200.7/6010B
Sodium, Dissolved	EPA-200.7/6010B
General Chemistry	
Hardness (calculated) as CaCO3	Freeze and Cherry, 1979
Residue, Dissolved @ 180°C	160.1/SM 2540 C
Residue, Suspended	160.2/SM 2540 D
Alkalinity, Total	310.1/SM 2320 B
Chemical Oxygen Demand	410.4/SM 5220 D
Carbon, Total Organic	4151/5310D/9060
BOD, (5-Day)	SDM 5210B
Color (Apparent)	USEPA-110.2
Turbidity	USEPA-180.1

Appendix D
Parameters and Analytical Methods
Surface Water Long List
Eagle Project

Parameter	Analytical Method
Organics (BTEX)	
Benzene	USEPA-8260B
Ethylbenzene	USEPA-8260B
Toluene	USEPA-8260B
Xylene (Total)	USEPA-8260B
Metals/Inorganics	
Aluminum, Total	EPA-200.7/6010B
Lithium, Total	EPA-200.7/6010B
Antimony, Total	EPA-200.8/6020
Arsenic, Total	EPA-200.8/6020
Barium, Total	EPA-200.8/6020
Iron, Total	EPA-200.7/6010B
Beryllium, Total	EPA-200.8/6020
Boron, Total	EPA-200.8/6020
Cadmium, Total	EPA-200.8/6020
Chromium, Total	EPA-200.8/6020
Cobalt, Total	EPA-200.8/6020
Copper, Total	EPA-200.8/6020
Lead, Total	EPA-200.8/6020
Manganese, Total	EPA-200.8/6020
Molybdenum, Total	EPA-200.8/6020
Nickel, Total	EPA-200.8/6020
Selenium, Total	EPA-200.8/6020
Silver, Total	EPA-200.8/6020
Zinc, Total	EPA-200.8/6020
Mercury, Total	EPA-1631E
Major Anions	
Alkalinity, Bicarbonate	310.1/SM 2320 B
Alkalinity, Carbonate	310.1/SM 2320 B
Chloride	325.2/4500-CL E
Fluoride	SM 4500 F-C
Nitrogen, Ammonia	350.1/4500 NH3G
Nitrogen, Nitrate	353.2/4500 NO3F
Nitrogen, Nitrite	USEPA-353.2
Sulfate	EPA-375.4/9038
Sulfide	376.1/4500 S2-F
Major Cations	
Calcium, Dissolved	EPA-200.7/6010B
Potassium, Dissolved	EPA-200.7/6010B
Magnesium, Dissolved	EPA-200.7/6010B
Sodium, Dissolved	EPA-200.7/6010B
General Chemistry	
Hardness (calculated) as CaCO3	Freeze and Cherry, 1979
Residue, Dissolved @ 180°C	160.1/SM 2540 C
Residue, Suspended	160.2/SM 2540 D
Alkalinity, Total	310.1/SM 2320 B
Chemical Oxygen Demand	410.4/SM 5220 D
Carbon, Dissolved Organic	SDM 5310 D
Carbon, Total Organic	EPA 415.1/5310D
BOD, (5-Day)	SDM 5210B
Coliform, Total	SM 9223B
Color (Apparent)	USEPA-110.2
SGT-HEM; Nonpolar Material (Total Petroleum Hydrocarbons)	USEPA-1664A
Turbidity	USEPA-180.1
Gross-Alpha	USEPA-900.0 MOD
Gross-Beta	USEPA-900.0 MOD

Appendix D
Parameters and Analytical Methods
Surface Water Supplemental List
Eagle Project

Parameter	Analytical Method
Major Anions	
Nitrogen, Total Kjeldahl	USEPA-351.2
General Chemistry	
E.Coli	SM 9223B(9221C)

Appendix D
Parameters and Analytical Methods
Groundwater List
Eagle Project

Parameter	Analytical Method
Metals/Inorganics	
Aluminum, Dissolved	EPA-200.7/6010B
Lithium, Dissolved	EPA-200.7/6010B
Antimony, Dissolved	EPA-200.8/6020
Arsenic, Dissolved	EPA-200.8/6020
Barium, Dissolved	EPA-200.8/6020
Iron, Dissolved	EPA-200.7/6010B
Beryllium, Dissolved	EPA-200.8/6020
Boron, Dissolved	EPA-200.7/6010B
Cadmium, Dissolved	EPA-200.8/6020
Chromium, Dissolved	EPA-200.8/6020
Cobalt, Dissolved	EPA-200.7/6010B
Copper, Dissolved	EPA-200.8/6020
Lead, Dissolved	EPA-200.8/6020
Manganese, Dissolved	EPA-200.7/6010B
Molybdenum, Dissolved	EPA-200.8/6020
Nickel, Dissolved	EPA-200.8/6020
Selenium, Dissolved	EPA-200.8/6020
Silver, Dissolved	EPA-200.8/6020
Zinc, Dissolved	EPA-200.8/6020
Mercury, Dissolved	EPA-1631E
Major Anions	
Alkalinity, Bicarbonate	310.1/SM 2320 B
Alkalinity, Carbonate	310.1/SM 2320 B
Chloride	325.2/4500-CL E
Fluoride	SM 4500 F-C
Nitrogen, Nitrate	353.2/4500 NO3F
Sulfate	EPA-375.4/9038
Major Cations	
Calcium, Dissolved	EPA-200.7/6010B
Potassium, Dissolved	EPA-200.7/6010B
Magnesium, Dissolved	EPA-200.7/6010B
Sodium, Dissolved	EPA-200.7/6010B
General Chemistry	
Hardness, (calculated) as CaCO3	Freeze and Cherry, 1979
Residue, Dissolved @ 180°C	160.1/SM 2540 C

Appendix D
Parameters and Analytical Methods
Groundwater Supplemental List
Eagle Project

Parameter	Analytical Method
General Chemistry	
Tritium	Ostlund and Dorsey, 1977 & Noakes and Valenta, 1989

APPENDIX E

Field Sampling Report

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 11/5/02

Activities: Collected surface water samples from the Salmon Trout (STR001 and STR002) and Yellow Dog River (YDR001 and YDR002) monitoring locations.

Completed 4 flow measurements at above locations on 11/5/02.

Collected duplicate sample.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	4
Water Sampling Log	4
Chain of Custody Numbers	66491, 67925

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry
Severn Trent - Radioactivity (gross alpha and gross beta)

Sampler Name(s): Dan Wiitala (DWW) and Peter Sabee (PJS)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STR001	EAG-1001001	11/5/02	1.8	38	6.2	4.5
STRM002	STR002	EAG-1001002	11/5/02	1.7	53	6.2	11
YDRM001	YDR001	EAG-1001003	11/5/02	1.5	47	6.8	9
YDRM002	YDR002	EAG-1001004	11/5/02	1.7	47	6.7	8

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	11/5/02	0.1
STRM002	11/5/02	1.8
YDRM001	11/5/02	25
YDRM002	11/5/02	27

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/5/02
Weather:	Overcast, flurries, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	STRM001	**Sampling time:**	1210
Sample ID:	STR001		
KEX ID:	EAG-1001001		
		Temperature (^{o}C):	1.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	38
Appearance:	Slight tannin	Conductivity (μmhos):	20
		pH (SU):	6.2
		D.O. (ppm):	4.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Red stripe	1	500 ml plastic	HNO3	Radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Pink	3	40 ml amber glass	H2SO4	Filtered DOC
None	1	250 ml glass	None	Total Hg
Dark blue	2	1000 ml amber glass	H2SO4	Nutrients TPH
Green	1	500 amber glass	NaOH & Zn acetate	Sulfide
Yellow	2	40 ml clear glass	HNO3	BTEX
White	2	125 ml bottle	Cool	Coliform

Photographs: Yes

Remarks: Channel has a series of dams and may not capture most of flow.

Meter units: ft/sec

Flow Measurement 11/5/02 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	1.0	0.00	0.3	0.00
0.5	0.5	1.0	0.01	0.5	0.01
1.0	0.5	1.3	0.00	0.7	0.00
1.5	0.5	1.4	0.01	0.7	0.01
2.0	0.5	1.6	0.03	0.8	0.02
2.5	0.5	1.8	0.05	0.9	0.05
3.0	0.5	1.7	0.05	0.9	0.04
3.5	0.5	1.5	-0.03	0.8	-0.02
4.0	0.5	1.0	0.06	0.5	0.03
4.5	0.3	1.0	-0.01	0.3	0.00

Total Flow: **0.1**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/5/02
Weather:	Overcast, snow flurries, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	STRM002	**Sampling time:**	1030
Sample ID:	STR002		
KEX ID:	EAG-1001002		
		Temperature (^{o}C):	1.7
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	53
Appearance:	Slight tannin	Conductivity (µmhos):	28
		pH (SU):	6.2
		D.O. (ppm):	11

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Red stripe	1	500 ml plastic	HNO3	Radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Pink	3	40 ml amber glass	H2SO4	Filtered DOC
None	1	250 ml glass	None	Total Hg
Dark blue	2	1000 ml amber glass	H2SO4	Nutrients TPH
Green	1	500 amber glass	NaOH & Zn acetate	Sulfide
Yellow	2	40 ml clear glass	HNO3	BTEX
White	2	125 ml bottle	Cool	Coliform

Photographs: Yes

Remarks: Masked duplicate (EAG-1001005) collected here.

Meter units: ft/sec

Flow Measurement 11/5/02 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.5	0.0	0.04	0.0	0.00
1.0	0.5	0.5	0.15	0.3	0.04
1.5	0.5	0.5	0.20	0.3	0.05
2.0	0.5	0.7	0.36	0.3	0.12
2.5	0.5	0.7	0.47	0.3	0.16
3.0	0.5	0.8	0.53	0.4	0.21
3.5	0.5	0.8	0.46	0.4	0.17
4.0	0.5	0.8	0.50	0.4	0.21
4.5	0.5	0.7	0.81	0.4	0.28
5.0	0.5	0.6	0.56	0.3	0.17
5.5	0.5	0.6	0.44	0.3	0.14
6.0	0.5	0.6	0.39	0.3	0.12
6.5	0.5	0.5	0.24	0.2	0.05
7.0	0.5	0.4	0.29	0.2	0.06
7.5	0.5	0.4	0.14	0.2	0.03
8.0	0.5	0.6	0.05	0.3	0.01
8.5	0.3	0.5	0.01	0.1	0.00

Total Flow: **1.81**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/5/02
Weather:	Light snow, overcast, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	YDRM001	**Sampling time:**	1530
Sample ID:	YDR001		
KEX ID:	EAG-1001003		
		Temperature (^{o}C):	1.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	47
Appearance:	Tannin	Conductivity (μmhos):	25
		pH (SU):	6.8
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Red stripe	1	500 ml plastic	HNO3	Radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Pink	3	40 ml amber glass	H2SO4	Filtered DOC
None	1	250 ml glass	None	Total Hg
Dark blue	2	1000 ml amber glass	H2SO4	Nutrients TPH
Green	1	500 amber glass	NaOH & Zn acetate	Sulfide
Yellow	2	40 ml clear glass	HNO3	BTEX
White	2	125 ml bottle	Cool	Coliform

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 11/5/02 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	1.2	0.02	1.2	0.02
2.0	1.0	2.5	0.07	2.5	0.18
3.0	1.0	2.8	0.32	2.8	0.90
4.0	1.0	3.0	0.23	3.0	0.69
5.0	1.0	3.4	0.46	3.4	1.56
6.0	1.0	3.6	0.49	3.6	1.76
7.0	1.0	3.8	0.59	3.8	2.24
8.0	1.0	3.9	0.89	3.9	3.47
9.0	1.0	3.6	1.12	3.6	4.03
10.0	1.0	3.6	0.90	3.6	3.24
11.0	1.0	3.3	0.97	3.3	3.20
12.0	1.0	3.1	0.88	3.1	2.73
13.0	1.0	2.9	0.28	2.9	0.81
14.0	0.5	2.8	0.10	1.4	0.14

Total Flow: **25**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/5/02
Weather:	Light snow, overcast, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	YDRM002	**Sampling time:**	1430
Sample ID:	YDR002		
KEX ID:	EAG-1001004		
		Temperature (^{o}C):	1.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	47
Appearance:	Tannin	Conductivity (μmhos):	25
		pH (SU):	6.7
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Red stripe	1	500 ml plastic	HNO3	Radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Pink	3	40 ml amber glass	H2SO4	Filtered DOC
None	1	250 ml glass	None	Total Hg
Dark blue	2	1000 ml amber glass	H2SO4	Nutrients TPH
Green	1	500 amber glass	NaOH & Zn acetate	Sulfide
Yellow	2	40 ml clear glass	HNO3	BTEX
White	2	125 ml bottle	Cool	Coliform

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 11/5/02 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.8	1.64	0.8	1.31
2.0	1.0	0.9	2.04	0.9	1.84
3.0	1.0	2.0	1.70	2.0	3.40
4.0	1.0	2.3	1.90	2.3	4.37
5.0	1.0	2.4	2.10	2.4	5.04
6.0	1.0	2.2	2.10	2.2	4.62
7.0	1.0	2.2	1.70	2.2	3.74
8.0	1.0	1.7	1.10	1.7	1.87
9.0	1.0	1.2	0.82	1.2	0.98
10.0	0.5	0.5	0.35	0.3	0.09

Total Flow: **27**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 2/25/03 and 2/26/03

Activities: Collected surface water samples from the Salmon Trout (STR001 and STR002) and Yellow Dog River (YDR002 and YDR003) monitoring locations.

Completed 4 flow measurements at above locations on 2/25/03 and 2/26/03.

Collected duplicate sample.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	4
Water Sampling Log	4
Chain of Custody Numbers	90946, 90947, 89587

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry
Severn Trent - Radioactivity (gross alpha and gross beta)

Sampler Name(s): Dan Wiitala (DWW) and Peter Sabee (PJS)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STR001	EAG-1001006	2/25/03	0.4	43	7.4	4.5
STRM002	STR002	EAG-1001007	2/25/03	0.2	69	7.0	6
YDRM001	YDR001	EAG-1001008	2/26/03	0.2	74	7.1	7
YDRM002	YDR002	EAG-1001009	2/26/03	0.0	74	7.3	7

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	2/25/03	0.3
STRM002	2/25/03	1.5
YDRM001	2/26/03	16
YDRM002	2/26/03	12

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/25/03
Weather:	Sunny, breezy, ~10°s F	**Sampler(s):**	PJS/DWW
Location:	STRM001	**Sampling time:**	1400
Sample ID:	STR001		
KEX ID:	EAG-1001006		
		Temperature (^{o}C):	0.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	43
Appearance:	Slight tannin, no visible	Conductivity (μmhos):	22
	suspended sediment	pH (SU):	7.4
		D.O. (ppm):	4.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Red stripe	1	500 ml plastic	HNO3	Radiation
Pink	3	40 ml amber glass	H2SO4	TOC
None	1	250 ml glass	None	Total Hg
Dark blue	2	1000 ml amber glass	H2SO4	Nutrients TPH
Green	1	500 amber glass	NaOH & Zn acetate	Sulfide
Yellow	2	40 ml clear glass	HNO3	BTEX
White	2	125 ml bottle	Cool	Coliform

Photographs: Yes

Remarks: Flow measured by cutting through ice.

Meter units: ft/sec

Flow Measurement 2/25/03 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	1.4	0.04	0.4	0.01
0.5	0.5	1.3	0.04	0.7	0.03
1.0	0.8	1.1	0.05	0.8	0.04
2.0	0.8	1.5	0.10	1.1	0.11
2.5	0.5	1.7	0.04	0.9	0.03
3.0	0.5	1.7	0.04	0.9	0.03
3.5	0.5	0.5	0.05	0.3	0.01
4.0	0.5	0.5	0.03	0.3	0.01
4.5	0.5	0.6	0.03	0.3	0.01
5.0	0.5	0.5	0.02	0.3	0.01
5.5	0.3	0.5	0.04	0.1	0.01

Total Flow: **0.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/25/03
Weather:	Sunny, breezy, ~10°s F	**Sampler(s):**	PJS/DWW
Location:	STRM002	**Sampling time:**	1200
Sample ID:	STR002		
KEX ID:	EAG-1001007		
		Temperature (^{o}C):	0.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	69
Appearance:	Slight tannin, no visible	Conductivity (μmhos):	35
	suspended sediment	pH (SU):	7.0
		D.O. (ppm):	6

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Red stripe	1	500 ml plastic	HNO3	Radiation
Pink	3	40 ml amber glass	H2SO4	TOC
None	1	250 ml glass	None	Total Hg
Dark blue	2	1000 ml amber glass	H2SO4	Nutrients TPH
Green	1	500 amber glass	NaOH & Zn acetate	Sulfide
Yellow	2	40 ml clear glass	HNO3	BTEX
White	2	125 ml bottle	Cool	Coliform

Photographs: Yes

Remarks: Flowing water with thin ice at gaging location.

Meter units: ft/sec

Flow Measurement 2/25/03 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.7	0.13	0.2	0.02
0.5	0.5	0.7	0.17	0.3	0.06
1.0	0.5	0.7	0.20	0.4	0.07
1.5	0.5	0.9	0.34	0.5	0.15
2.0	0.5	1.0	0.19	0.5	0.10
2.5	0.5	0.9	0.60	0.5	0.27
3.0	0.5	0.9	0.41	0.4	0.17
3.5	0.5	0.8	0.03	0.4	0.01
4.0	0.5	0.7	0.04	0.4	0.01
4.5	0.5	0.7	0.24	0.4	0.08
5.0	0.5	0.6	0.38	0.3	0.11
5.5	0.5	0.6	0.81	0.3	0.22
6.0	0.5	0.6	0.50	0.3	0.14
6.5	0.5	0.6	0.06	0.3	0.02
7.0	0.5	0.7	0.02	0.3	0.01
7.5	0.5	0.5	0.12	0.2	0.03
8.0	0.5	0.3	0.03	0.2	0.00
8.5	0.3	0.2	0.00	0.1	0.00

Total Flow: **1.5**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/26/03
Weather:	Sunny, breezy, ~10°s F	**Sampler(s):**	PJS/DWW
Location:	YDRM001	**Sampling time:**	1400
Sample ID:	YDR001		
KEX ID:	EAG-1001008		
		Temperature (^{o}C):	0.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	74
Appearance:	Slight tannin, no visible	Conductivity (μmhos):	37
	sediment	pH (SU):	7.1
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Red stripe	1	500 ml plastic	HNO3	Radiation
Pink	3	40 ml amber glass	H2SO4	TOC
None	1	250 ml glass	None	Total Hg
Dark blue	2	1000 ml amber glass	H2SO4	Nutrients TPH
Green	1	500 amber glass	NaOH & Zn acetate	Sulfide
Yellow	2	40 ml clear glass	HNO3	BTEX
White	2	125 ml bottle	Cool	Coliform

Photographs: Yes

Remarks: Ice thin on edges of flow measurement site; used 5 locations through spud holes.
Ice ~2" thick in middle of channel.

Meter units: ft/sec

Flow Measurement 2/26/03 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Effective Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.5	1.9	0.19	2.9	0.50
3.0	2.5	2.5	0.36	6.3	2.07
6.0	3.0	2.8	0.72	8.4	5.56
9.0	3.0	2.6	0.68	7.8	4.88
12.0	2.5	2.3	0.53	5.8	2.80
14.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **16**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/26/03
Weather:	Sunny, breezy, ~10°s F	**Sampler(s):**	PJS/DWW
Location:	YDRM002	**Sampling time:**	1200
Sample ID:	YDR002		
KEX ID:	EAG-1001009		
		Temperature (^{o}C):	0.0
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	74
Appearance:	Slight tannin, no visible	Conductivity (μmhos):	37
	sediment	pH (SU):	7.3
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Red stripe	1	500 ml plastic	HNO3	Radiation
Pink	3	40 ml amber glass	H2SO4	TOC
None	1	250 ml glass	None	Total Hg
Dark blue	2	1000 ml amber glass	H2SO4	Nutrients TPH
Green	1	500 amber glass	NaOH & Zn acetate	Sulfide
Yellow	2	40 ml clear glass	HNO3	BTEX
White	2	125 ml bottle	Cool	Coliform

Photographs: Yes

Remarks: Masked duplicate (Duplicate, EAG-1001010) collected here.

Ice cover 100%, ~ 2" thick. Measured at 1' intervals.

Meter units: ft/sec

Flow Measurement 2/26/03 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Effective Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.9	0.41	0.5	0.17
1.0	1.0	1.4	0.52	1.4	0.67
2.0	1.0	2.1	0.66	2.1	1.28
3.0	1.0	2.1	0.71	2.1	1.37
4.0	1.0	1.9	1.15	1.9	2.01
5.0	1.0	2.0	0.84	2.0	1.55
6.0	1.0	2.0	0.79	2.0	1.45
7.0	1.0	2.0	0.68	2.0	1.25
8.0	1.0	1.9	0.68	1.9	1.19
9.0	1.0	1.3	0.44	1.3	0.53
10.0	0.5	0.6	0.27	0.3	0.07

Total Flow: **12**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 4/23/03, 4/25/03, 5/6/03

Activities: Collected surface water samples from the Salmon Trout (STR001 and STR002), Yellow Dog (YDR002 and YDR003) and Cedar Creek (CDR002) monitoring locations.

Completed 3 flow measurements at STR002, YDR002 and CDR002 on 4/25/03 and 5/6/03.

Collected duplicate and field blank samples.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	3
Water Sampling Log	5
Chain of Custody Numbers	92044, 92045

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Dan Wiitala (DWW) and Peter Sabee (PJS)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STR001	EAG-1001011	4/23 & 5/6/03	5.3	26	6.5	4.5
STRM002	STR002	EAG-1001012	4/23 & 5/6/03	5.1	34	7.5	7
YDRM001	YDR001	EAG-1001013	4/23/03	5.2	19	6.3	7
YDRM002	YDR002	EAG-1001014	4/23/03	5.4	21	6.5	7
CDRA002	CDR002	EAG-1001016	5/6/03	9.7	93	8.0	7

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM002	4/25/03	3.3
YDRM002	4/25/03	130
CDRA002	5/6/03	1.7

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/23 & 5/6/03
Weather:	Sunny, calm, ~50°s F	**Sampler(s):**	PJS/DWW
Location:	STRM001	**Sampling time:**	1100
Sample ID:	STR001		(4/23/03)
KEX ID:	EAG-1001011		
		Temperature (^{o}C):	5.3
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	26
Appearance:	Slight tannin, amber stained	Conductivity (μmhos):	16
	Some susp. sediment	pH (SU):	6.5
		D.O. (ppm):	4.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks: BOD recollected on 5-6-03 due to hold time problem with initial sample.

No flow measurement because flow was too diffuse through the wetland.

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/23 & 5/6/03
Weather:	Sunny, calm, ~40°s F	**Sampler(s):**	PJS/DWW
Location:	STRM002	**Sampling time:**	1030
Sample ID:	STR002		(4/23/03)
KEX ID:	EAG-1001012		
		Temperature (^{o}C):	5.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	34
Appearance:	Slight tannin, amber	Conductivity (μmhos):	21
	stained, sediment free	pH (SU):	7.5
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks: Snow cover 0-1'.

BOD recollected on 5-6-03 due to hold time problem with initial sample.

Meter units: ft/sec

Flow Measurement 4/25/03 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
13.0	0.5	0.8	0.30	0.4	0.12
12.0	1.0	1.1	0.25	1.1	0.28
11.0	1.0	1.1	0.80	1.1	0.88
10.0	1.0	1.0	0.60	1.0	0.60
9.0	1.0	0.9	0.73	0.9	0.66
8.0	1.0	0.7	0.14	0.7	0.10
7.0	1.0	0.9	0.49	0.9	0.42
6.0	1.0	1.0	-0.07	1.0	-0.07
5.0	1.0	0.8	0.05	0.8	0.04
4.0	1.0	0.4	0.61	0.4	0.24
3.0	0.5	0.4	0.20	0.2	0.04

Total Flow: **3.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/23/03
Weather:	Sunny, ~50°s F	**Sampler(s):**	PJS/DWW
Location:	YDRM001	**Sampling time:**	1300
Sample ID:	YDR001		
KEX ID:	EAG-1001013		
		Temperature (^{o}C):	5.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	19
Appearance:	Very slight tannin, amber	Conductivity (μmhos):	12
	Clear	pH (SU):	6.3
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks: No flow measurement because stream was out of banks with diffuse flow through alders.

North Jackson Company
Surface Water Sampling Log

Proj. Name: Eagle BES
Weather: Sunny, slight breeze, ~50°s F
Location: YDRM002
Sample ID: YDR002
KEX ID: EAG-1001014

Date: 4/23/03
Sampler(s): PJS/DWW
Sampling time: 1530

Odor: None
Appearance: Very slight tannin

Temperature (°C): 5.4
Spec. Cond. (µmhos/cm @ 25°C): 21
Conductivity (µmhos): 13
pH (SU): 6.5
D.O. (ppm): 7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks: Some flow around bridge in separate channel so overflow measurement made (A).

Meter units: ft/sec

Flow Measurement 4/25/03 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
20.0	0.5	0.1	0.00	0.1	0.00
19.0	1.0	0.6	0.10	0.6	0.06
18.0	1.0	1.6	1.77	1.6	2.83
17.0	1.0	2.5	3.10	2.5	7.75
16.0	1.0	2.8	3.90	2.8	10.92
15.0	1.0	3.2	3.28	3.2	10.50
14.0	1.0	3.8	3.83	3.8	14.55
13.0	1.0	4.4	3.60	4.4	15.84
12.0	1.0	4.4	3.90	4.4	17.16
11.0	1.0	4.4	3.25	4.4	14.30
10.0	1.0	4.0	3.00	4.0	12.00
9.0	1.0	3.4	2.47	3.4	8.40
8.0	1.0	2.9	2.02	2.9	5.86
7.0	1.0	2.2	1.96	2.2	4.31
6.0	1.0	1.7	2.02	1.7	3.43
5.0	1.0	0.8	1.90	0.8	1.52
4.0	1.0	0.4	0.88	0.4	0.35
3.0	0.5	0.1	0.00	0.1	0.00

Main Flow: **130**
A Flow: **0.3**
Total Flow: **130**

Overflow Measurement **A**

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.1	0.00	0.1	0.00
1.0	1.0	0.4	0.05	0.4	0.02
2.0	1.0	0.4	0.09	0.4	0.04
3.0	1.0	0.5	0.06	0.5	0.03
4.0	1.0	0.6	0.18	0.6	0.11
5.0	1.0	0.4	0.12	0.4	0.05
6.0	1.0	0.2	0.00	0.2	0.00
7.0	0.5	0.4	0.05	0.2	0.01

Total Flow: **0.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/6/03
Weather:	Sunny, light wind, ~40°s F	**Sampler(s):**	PJS/DWW
Location:	CDRA002	**Sampling time:**	1340
Sample ID:	CDR002		
KEX ID:	EAG-1001016		
		Temperature (^{o}C):	9.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	93
Appearance:	Clear	Conductivity (μmhos):	66
		pH (SU):	8.0
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks: Masked duplicate (M-1, EAG-1001017) collected here.

Meter units: ft/sec

Flow Measurement 5/6/03 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.1	0.1	0.00	0.0	0.00
1.3	0.3	0.2	1.09	0.0	0.04
1.5	0.3	0.4	1.56	0.1	0.14
1.8	0.3	0.4	2.27	0.1	0.20
2.0	0.2	0.4	2.71	0.1	0.24
2.3	0.3	0.4	3.23	0.1	0.28
2.5	0.3	0.4	3.20	0.1	0.28
2.8	0.3	0.4	2.26	0.1	0.20
3.0	0.3	0.3	1.07	0.1	0.07
3.3	0.3	0.3	1.50	0.1	0.11
3.5	0.3	0.3	1.18	0.1	0.09
3.8	0.3	0.3	0.76	0.1	0.06
4.0	0.3	0.3	0.56	0.1	0.04
4.3	0.3	0.2	0.32	0.0	0.01
4.5	0.1	0.1	0.00	0.0	0.00

Total Flow: **1.7**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 6/19/03 and 6/25/03

Activities: Collected surface water samples from the Salmon Trout (STR001 and STR002), Yellow Dog (YDR002 and YDR003) and Cedar Creek (CR002) monitoring locations.

Completed 5 flow measurements at above locations on 6/19/03 and 6/25/03.

Collected field blank sample.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	5
Water Sampling Log	5
Chain of Custody Numbers	90340

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Dan Wiitala (DWW) and John Meier (JGM)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STR001	EAG-1001018	6/19/03	16	67	7.6	2.5
STRM002	STR002	EAG-1001019	6/19/03	14	61	8.1	4.5
YDRM001	YDR001	EAG-1001020	6/19/03	17	65	6.9	7
YDRM002	YDR002	EAG-1001021	6/19/03	17	64	7.2	7
CDRA002	CDR002	EAG-1001022	6/25/03	11	97	7.7	7

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	6/19/03	0.2
STRM002	6/19/03	0.9
YDRM001	6/19/03	16
YDRM002	6/19/03	16
CDRA002	6/25/03	1.6

North Jackson Company
Surface Water Sampling Log

Proj. Name: Eagle BES
Weather: Clear, dry, slight breeze, ~70°s F
Location: STRM001
Sample ID: STR001
KEX ID: EAG-1001018

Date: 6/19/03
Sampler(s): DWW/JGM
Sampling time: 1130

Odor: Slightly swampy
Appearance: Medium tannin
Some sediment

Temperature (°C): 16
Spec. Cond. (μmhos/cm @ 25°C): 67
Conductivity (μmhos): 55
pH (SU): 7.6
D.O. (ppm): 2.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None
Remarks:

Meter units: ft/sec
Flow Measurement 6/19/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	0.8	1.1	0.02	0.8	0.02
1.5	0.5	1.3	0.02	0.7	0.01
2.0	0.5	1.3	0.02	0.7	0.01
2.5	0.5	1.8	0.02	0.9	0.02
3.0	0.8	1.8	0.02	1.4	0.03
4.0	1.0	1.9	0.03	1.9	0.06
5.0	1.0	1.8	0.04	1.8	0.07
6.0	0.8	1.0	0.01	0.8	0.01
6.5	0.3	1.1	0.01	0.3	0.00

Total Flow: **0.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name: Eagle BES
Weather: Clear, dry, slight breeze, ~70°s F
Location: STRM002
Sample ID: STR002
KEX ID: EAG-1001019

Date: 6/19/03
Sampler(s): DWW/JGM
Sampling time: 1015

Odor: None
Appearance: Clear

Temperature (^{o}C): 14
Spec. Cond. (μmhos/cm @ 25°C): 61
Conductivity (μmhos): 48
pH (SU): 8.1
D.O. (ppm): 4.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None
Remarks:

Meter units: ft/sec
Flow Measurement 6/19/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.7	0.82	0.4	0.29
1.0	1.0	0.8	0.00	0.8	0.00
2.0	1.0	0.9	0.55	0.9	0.47
3.0	1.0	0.9	0.15	0.9	0.13
4.0	1.0	0.8	0.05	0.8	0.04
5.0	1.0	0.6	0.05	0.6	0.03
6.0	1.0	0.5	0.05	0.5	0.03
7.0	1.0	0.7	-0.04	0.7	-0.03
8.0	1.0	0.5	-0.08	0.5	-0.04
9.0	1.0	0.4	0.00	0.4	0.00
10.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **0.9**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/19/03
Weather:	Clear, dry, ~70°s F	**Sampler(s):**	DWW/JGM
Location:	YDRM001	**Sampling time:**	1500
Sample ID:	YDR001		
KEX ID:	EAG-1001020		
		Temperature (^{o}C):	17
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	65
Appearance:	Medium amber	Conductivity (μmhos):	55
	Clear	pH (SU):	6.9
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 6/19/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.3	0.4	0.0	0.00	0.0	0.00
1.0	0.9	0.4	0.00	0.4	0.00
2.0	1.0	1.0	0.08	1.0	0.08
3.0	1.0	2.1	0.32	2.1	0.67
4.0	1.0	2.2	0.36	2.2	0.79
5.0	1.0	2.4	0.41	2.4	0.98
6.0	1.0	2.7	0.35	2.7	0.95
7.0	1.0	3.3	0.51	3.3	1.68
8.0	1.0	3.4	0.71	3.4	2.41
9.0	1.0	3.5	0.83	3.5	2.91
10.0	1.0	3.1	0.78	3.1	2.42
11.0	1.0	2.9	0.66	2.9	1.91
12.0	1.0	2.7	0.32	2.7	0.86
13.0	1.0	2.4	0.15	2.4	0.36
14.0	1.0	2.1	0.04	2.1	0.08
15.0	0.8	1.5	0.01	1.1	0.01
15.5	0.3	0.0	0	0.0	0.00

Total Flow: **16**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/19/03
Weather:	Clear, dry, ~70°s F	**Sampler(s):**	DWW/JGM
Location:	YDRM002	**Sampling time:**	1315
Sample ID:	YDR002		
KEX ID:	EAG-1001021		
		Temperature (^{o}C):	17
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	64
Appearance:	Slight amber	Conductivity (μmhos):	54
	Trace sediment	pH (SU):	7.2
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 6/19/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.3	0.4	0.0	0.00	0.0	0.00
1.0	0.9	0.6	1.10	0.5	0.58
2.0	1.0	1.0	1.30	1.0	1.30
3.0	1.0	1.5	1.40	1.5	2.10
4.0	1.0	1.8	1.30	1.8	2.34
5.0	1.0	2.1	1.20	2.1	2.52
6.0	1.0	1.9	1.15	1.9	2.19
7.0	1.0	1.9	1.18	1.9	2.24
8.0	1.0	1.7	1.00	1.7	1.70
9.0	1.0	0.5	1.05	0.5	0.53
10.0	0.8	0.2	0.47	0.2	0.07
10.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **16**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/25/03
Weather:	Sunny, hazy, humid, ~90°s F	**Sampler(s):**	DWW/JGM
Location:	CDRA002	**Sampling time:**	1350
Sample ID:	CDR002		
KEX ID:	EAG-1001022		
		Temperature (^{o}C):	11
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	97
Appearance:	Slight amber	Conductivity (μmhos):	70
	Trace sediment	pH (SU):	7.7
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 6/25/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.5	0.3	0.15	0.2	0.02
1.0	0.5	0.5	1.40	0.2	0.32
1.5	0.5	0.5	3.00	0.2	0.68
2.0	0.5	0.4	1.83	0.2	0.32
2.5	0.5	0.3	0.50	0.1	0.06
3.0	0.5	0.2	0.50	0.1	0.05
3.5	0.5	0.3	0.83	0.2	0.12
4.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **1.6**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company

Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 8/13/03 and 8/14/03

Activities: Collected surface water samples from the Salmon Trout (STR001 and STR002), Yellow Dog (YDR001 and YDR002) and Cedar Creek (CR002 and CR004) monitoring locations.

Completed 6 flow measurements at the above locations on 8/13/03 and 8/14/03.

Collected duplicate sample.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	6
Water Sampling Log	6
Chain of Custody Numbers	95337, 95338

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Dan Wiitala (DWW) and John Meier (JGM)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STR001	EAG-1001025	8/13/03	19	71	6.1	2
STRM002	STR002	EAG-1001026	8/13/03	18	63	6.4	5
YDRM001	YDR001	EAG-1001027	8/13/03	15	74	7.5	5.5
YDRM002	YDR002	EAG-1001028	8/13/03	16	75	7.1	5.5
CDRA002	CDR002	EAG-1001029	8/14/03	9.2	97	6.6	7
CDRM004	CDR004	EAG-1001030	8/14/03	14	148	7.3	7

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	8/13/03	0.2
STRM002	8/13/03	1.4
YDRM001	8/13/03	11
YDRM002	8/13/03	11
CDRA002	8/14/03	1.5
CDRM004	8/14/03	9.4

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/13/03
Weather:	Clear, calm, dry, ~80°s F	**Sampler(s):**	DWW/JGM
Location:	STRM001	**Sampling time:**	1300
Sample ID:	STR001		
KEX ID:	EAG-1001025		
		Temperature (^{o}C):	19
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	71
Appearance:	Tannin/brown, some	Conductivity (μmhos):	62
	biological growth	pH (SU):	6.1
		D.O. (ppm):	2

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 8/13/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	1.6	0.02	0.4	0.01
0.5	0.8	1.8	0.01	1.4	0.01
1.5	1.0	1.8	0.04	1.8	0.07
2.5	1.0	1.7	0.02	1.7	0.03
3.5	1.0	1.9	0.02	1.9	0.04
4.5	0.8	1.7	0.00	1.3	0.00
5.0	0.5	1.6	0.01	0.8	0.01
5.5	0.3	1.0	0.01	0.3	0.00

Total Flow: **0.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/13/03
Weather:	Clear, calm, ~80°s F	**Sampler(s):**	DWW/JGM
Location:	STRM002	**Sampling time:**	1400
Sample ID:	STR002		
KEX ID:	EAG-1001026		
		Temperature (^{o}C):	18
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	63
Appearance:	Slight tannin	Conductivity (μmhos):	55
		pH (SU):	6.4
		D.O. (ppm):	5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 8/13/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.8	0.10	0.2	0.02
0.5	0.8	0.8	0.63	0.6	0.38
1.5	1.0	0.8	0.30	0.8	0.24
2.5	1.0	0.8	0.78	0.8	0.62
3.5	1.0	0.7	0.30	0.7	0.20
4.5	1.0	0.5	0.00	0.5	0.00
5.5	1.0	0.6	0.02	0.6	0.01
6.5	1.0	0.5	-0.06	0.5	-0.03
7.5	1.0	0.4	-0.04	0.4	-0.02
8.5	0.5	0.3	0.00	0.1	0.00

Total Flow: **1.4**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/13/03
Weather:	Clear, ~70°s F	**Sampler(s):**	DWW/JGM
Location:	YDRM001	**Sampling time:**	1015
Sample ID:	YDR001		
KEX ID:	EAG-1001027		
		Temperature (^{o}C):	15
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	74
Appearance:	Slight tannin	Conductivity (μmhos):	60
		pH (SU):	7.5
		D.O. (ppm):	5.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 8/13/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.7	0.03	0.5	0.01
1.5	1.0	1.4	0.06	1.4	0.08
2.5	1.0	2.0	0.28	2.0	0.56
3.5	1.0	2.2	0.28	2.2	0.62
4.5	1.0	2.5	0.25	2.5	0.63
5.5	1.0	2.7	0.07	2.7	0.19
6.5	1.0	3.1	0.35	3.1	1.09
7.5	1.0	3.3	0.66	3.3	2.18
8.5	1.0	3.3	0.80	3.3	2.64
9.5	1.0	3.1	0.47	3.1	1.46
10.5	1.0	2.7	0.27	2.7	0.73
11.5	1.0	2.6	0.19	2.6	0.49
12.5	1.0	2.5	0.10	2.5	0.25
13.5	1.0	2.0	0.05	2.0	0.10
14.5	0.8	1.6	0.00	1.2	0.00
15.0	0.3	1.1	-0.02	0.3	-0.01

Total Flow: **11**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/13/03
Weather:	Clear, calm, ~75° F	**Sampler(s):**	DWW/JGM
Location:	YDRM002	**Sampling time:**	1130
Sample ID:	YDR002		
KEX ID:	EAG-1001028		
		Temperature (^{o}C):	16
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	75
Appearance:	Slight tannin	Conductivity (μmhos):	61
		pH (SU):	7.1
		D.O. (ppm):	5.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 8/13/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.8	0.45	0.6	0.27
1.5	1.0	1.0	1.00	1.0	1.00
2.5	1.0	1.7	1.00	1.7	1.70
3.5	1.0	1.8	1.05	1.8	1.89
4.5	1.0	1.9	1.00	1.9	1.90
5.5	1.0	1.8	0.93	1.8	1.67
6.5	1.0	1.6	0.85	1.6	1.36
7.5	1.0	0.9	0.91	0.9	0.82
8.5	0.8	0.5	0.42	0.4	0.16
9.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **11**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/14/03
Weather:	Clear, dry, breezy, no bugs, ~70°s F	**Sampler(s):**	DWW/JGM
Location:	CDRA002	**Sampling time:**	0900
Sample ID:	CDR002		
KEX ID:	EAG-1001029		

		Temperature (^{o}C):	9.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	97
Appearance:	Trace sediment	Conductivity (μmhos):	68
		pH (SU):	6.6
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: Yes

Remarks: Masked duplicate (Duplicate, EAG-1001031) collected here.

Meter units: ft/sec

Flow Measurement 8/14/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.5	0.3	0.00	0.2	0.00
1.0	0.5	0.4	1.04	0.2	0.21
1.5	0.5	0.5	2.45	0.2	0.55
2.0	0.5	0.4	2.55	0.2	0.51
2.5	0.5	0.4	1.20	0.2	0.21
3.0	0.5	0.2	0.20	0.1	0.02
3.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **1.5**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/14/03
Weather:	Clear, slight breeze, dry, ~80°s F	**Sampler(s):**	DWW/JGM
Location:	CDRM004	**Sampling time:**	1115
Sample ID:	CDR004		
KEX ID:	EAG-1001030		
		Temperature (^{o}C):	14
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	148
Appearance:	Clear	Conductivity (μmhos):	116
		pH (SU):	7.3
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	2	500 ml plastic	H2SO4	Nutrients TPH

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 8/14/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	1.0	0.00	0.5	0.00
1.0	1.3	1.6	0.67	2.0	1.34
2.5	1.3	1.7	0.68	2.1	1.45
3.5	1.0	2.0	0.43	2.0	0.86
4.5	1.0	2.2	0.54	2.2	1.16
5.5	1.0	2.0	0.52	2.0	1.01
6.5	1.0	2.2	0.37	2.2	0.81
7.5	1.0	2.2	0.35	2.2	0.77
8.5	1.0	1.9	0.38	1.9	0.70
9.5	1.0	1.5	0.32	1.5	0.48
10.5	1.0	1.1	0.35	1.1	0.39
11.5	1.0	0.9	0.30	0.9	0.26
12.5	1.0	0.9	0.17	0.9	0.14
13.5	0.5	0.7	0.01	0.4	0.00

Total Flow: **9.4**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 10/28/03 and 10/29/03

Activities: Collected surface water samples from the Salmon Trout (STR001 and STR002), Yellow Dog (YDR001 and YDR002) and Cedar Creek (CR002 and CR004) monitoring locations.

Completed 6 flow measurements at the above locations on 10/28/03 and 10/29/03.

Collected duplicate and field blank samples.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	6
Water Sampling Log	6
Chain of Custody Numbers	94840, 94843

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Dan Wiitala (DWW) and John Meier (JGM)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STR001	EAG-1001032	10/28/03	3.5	39	7.5	5
STRM002	STR002	EAG-1001033	10/28/03	3.3	59	7.8	5
YDRM001	YDR001	EAG-1001034	10/28/03	3.8	68	7.2	7
YDRM002	YDR002	EAG-1001035	10/28/03	3.8	69	7.4	7
CDRA002	CDR002	EAG-1001036	10/29/03	6.6	96	7.3	7
CDRM004	CDR004	EAG-1001037	10/29/03	5.5	121	7.0	7

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	10/28/03	0.2
STRM002	10/28/03	1.1
YDRM001	10/28/03	17
YDRM002	10/28/03	15
CDRA002	10/29/03	1.6
CDRM004	10/29/03	13

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/28/03
Weather:	Overcast, ~30°s F	**Sampler(s):**	DWW/JGM
Location:	STRM001	**Sampling time:**	1030
Sample ID:	STR001		
KEX ID:	EAG-1001032		
		Temperature (^{o}C):	3.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	39
Appearance:	Slight amber, some	Conductivity (μmhos):	23
	sediment/organic	pH (SU):	7.5
		D.O. (ppm):	5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 10/28/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	1.9	0.03	1.4	0.04
1.5	1.0	1.7	0.00	1.7	0.00
2.5	1.0	1.7	0.04	1.7	0.07
3.5	1.0	2.2	0.02	2.2	0.04
4.5	1.0	1.9	0.02	1.9	0.04
5.5	0.8	1.6	0.03	1.2	0.04
6.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **0.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/28/03
Weather:	Snow/rain, ~30°s F	**Sampler(s):**	DWW/JGM
Location:	STRM002	**Sampling time:**	0830
Sample ID:	STR002		
KEX ID:	EAG-1001033		
		Temperature (^{o}C):	3.3
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	59
Appearance:	Clear, slight amber	Conductivity (μmhos):	34
	Very slight sediment	pH (SU):	7.8
		D.O. (ppm):	5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients

Photographs: Yes

Remarks: LSCWP (Joe Wagner), KEX (August Keso, Andrew Ware), and DEQ (Ben Thierry) present.

Masked duplicate (M-1, EAG- 1001038) collected here.

Meter units: ft/sec

Flow Measurement 10/28/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.6	0.33	0.5	0.15
1.5	1.0	0.7	0.34	0.7	0.24
2.5	1.0	0.7	0.24	0.7	0.17
3.5	1.0	0.6	0.60	0.6	0.36
4.5	1.0	0.8	0.22	0.8	0.18
5.5	1.0	0.6	0.00	0.6	0.00
6.5	1.0	0.6	-0.02	0.6	-0.01
7.5	1.0	0.3	-0.07	0.3	-0.02
8.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **1.1**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/28/03
Weather:	Overcast, ~30°s F	**Sampler(s):**	DWW/JGM
Location:	YDRM001	**Sampling time:**	1300
Sample ID:	YDR001		
KEX ID:	EAG-1001034		
		Temperature (^{o}C):	3.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	68
Appearance:	Slight amber	Conductivity (μmhos):	40
	Clear	pH (SU):	7.2
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 10/28/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.7	0.00	0.5	0.00
1.5	1.0	0.9	-0.01	0.9	-0.01
2.5	1.0	1.3	0.10	1.3	0.13
3.5	1.0	2.3	0.13	2.3	0.29
4.5	1.0	2.5	0.39	2.5	0.98
5.5	1.0	2.8	0.39	2.8	1.07
6.5	1.0	3.1	0.31	3.1	0.96
7.5	1.0	3.6	0.65	3.6	2.31
8.5	1.0	3.6	0.78	3.6	2.81
9.5	1.0	3.3	0.84	3.3	2.77
10.5	1.0	3.3	0.73	3.3	2.41
11.5	1.0	2.9	0.52	2.9	1.51
12.5	1.0	2.8	0.21	2.8	0.58
13.5	1.0	2.7	0.23	2.7	0.62
14.5	0.8	2.0	0.11	1.5	0.17
15.0	0.5	1.5	0.17	0.8	0.13
15.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **17**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/28/03
Weather:	Overcast, ~30°s F	**Sampler(s):**	DWW/JGM
Location:	YDRM002	**Sampling time:**	1200
Sample ID:	YDR002		
KEX ID:	EAG-1001035		
		Temperature (°C):	3.8
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	69
Appearance:	Slight amber	Conductivity (µmhos):	41
	Clear	pH (SU):	7.4
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 10/28/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.4	0.95	0.3	0.25
1.5	1.0	0.9	1.35	0.9	1.15
2.5	1.0	1.9	1.15	1.9	2.13
3.5	1.0	1.7	1.45	1.7	2.47
4.5	1.0	2.1	1.34	2.1	2.81
5.5	1.0	1.9	1.34	1.9	2.55
6.5	1.0	1.7	1.24	1.7	2.11
7.5	1.0	1.4	0.72	1.4	0.97
8.5	0.8	0.7	0.82	0.5	0.43
9.0	0.3	0.3	0.41	0.1	0.03

Total Flow: **15**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/29/03
Weather:	Overcast, ~30°s F	**Sampler(s):**	DWW/JGM
Location:	CDRA002	**Sampling time:**	0845
Sample ID:	CDR002		
KEX ID:	EAG-1001036		
		Temperature (^{o}C):	6.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	96
Appearance:	Some sediment	Conductivity (μmhos):	62
		pH (SU):	7.3
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 10/29/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.3	-0.07	0.1	0.00
0.5	0.5	0.3	0.50	0.2	0.08
1.0	0.5	0.4	1.50	0.2	0.30
1.5	0.5	0.4	2.70	0.2	0.54
2.0	0.5	0.4	2.60	0.2	0.52
2.5	0.5	0.2	1.00	0.1	0.10
3.0	0.5	0.3	0.40	0.1	0.05
3.5	0.5	0.2	0.15	0.1	0.02
4.0	0.3	0.0	0.00	0.1	0.00

Total Flow: **1.6**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/29/03
Weather:	Overcast, ~30°s F	**Sampler(s):**	DWW/JGM
Location:	CDRM004	**Sampling time:**	1000
Sample ID:	CDR004		
KEX ID:	EAG-1001037		
		Temperature (^{o}C):	5.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	121
Appearance:	Some sediment	Conductivity (μmhos):	76
		pH (SU):	7.0
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 10/29/03 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.5	0.3	1.7	0.94	0.4	0.40
1.0	1.0	1.9	0.84	1.9	1.60
2.5	1.3	2.1	0.68	2.6	1.79
3.5	1.0	2.3	0.85	2.3	1.96
4.5	1.0	2.1	0.79	2.1	1.66
5.5	1.0	1.9	0.73	1.9	1.39
6.5	1.0	1.8	0.75	1.8	1.35
7.5	1.0	1.6	0.67	1.6	1.07
8.5	1.0	1.4	0.62	1.4	0.87
9.5	1.0	1.1	0.59	1.1	0.65
10.5	1.0	1.0	0.43	1.0	0.43
11.5	1.0	0.9	0.14	0.9	0.13
12.5	0.8	0.9	0.04	0.7	0.03
13.0	0.3	0.8	0.03	0.2	0.01

Total Flow: **13**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 12/4/2003

Activities: Collected surface water samples from the Salmon Trout (STR002) and Yellow Dog River (YDR002) monitoring locations.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	0
Water Sampling Log	2
Chain of Custody Numbers	97514

Laboratory Analysis
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): John Meier (JGM)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM002	STR002	EAG-1001040	12/4/03	0.3	70	7.7	NM
YDRM002	YDR002	EAG-1001041	12/4/03	0.2	56	7.5	NM

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/4/03
Weather:	Partly cloudy, ~20°s F	**Sampler(s):**	JGM
Location:	STRM002	**Sampling time:**	0930
Sample ID:	STR002		
KEX ID:	EAG-1001040		
		Temperature (^{o}C):	0.3
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	70
Appearance:	Slight tannin	Conductivity (µmhos):	35
		pH (SU):	7.7
		D.O. (ppm):	NM

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients TPH

Photographs: Yes

Remarks: Split sampling event with MDEQ.

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/4/03
Weather:	Partly cloudy, ~20°s F	**Sampler(s):**	JGM
Location:	YDRM002	**Sampling time:**	1030
Sample ID:	YDR002		
KEX ID:	EAG-1001041		
		Temperature (^{o}C):	0.2
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	56
Appearance:	Slight tannin	Conductivity (µmhos):	28
		pH (SU):	7.5
		D.O. (ppm):	NM

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients TPH

Photographs: Yes

Remarks: Split sampling event with MDEQ.

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 2/18/04, 2/19/04, 2/24/04, 2/25/04 and 2/26/04

Activities: Collected surface water samples from Salmon Trout (STRM001, STRM002, STRM003, STRW001 AND STRE001), Yellow Dog (YDRM001, YDRM002 and YDRM003), and Cedar River (CDRA002 and CDRM004) monitoring locations.

Collected duplicate and field blank samples.

Completed flow measurements at above locations on 2/25/04 and 2/26/04.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	10
Water Sampling Log	10
Chain of Custody Numbers	098098, 098099 and 098100

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Peter Sabee (PJS), Dan Wiitala (DWW) and John Meier (JGM)

North Jackson Company
Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STRMS001	EAG-1001046	2/18/04	0.4	41	7.8	4.5
STRM002	STRMS002	EAG-1001045	2/18/04	0.4	70	8.3	7
STRM003	STRMS003	EAG-1001052	2/24/04	2.2	94	7.9	10
STRW001	STRWS001	EAG-1001051	2/24/04	1.4	118	7.7	10
STRE001	STRES001	EAG-1001053	2/24/04	3.8	128	7.8	8
YDRM001	YDRMS001	EAG-1001043	2/18/04	0.2	73	8.1	8
YDRM002	YDRMS002	EAG-1001044	2/18/04	0.3	74	8.5	8
YDRM003	YDRMS003	EAG-1001047	2/19/04	0.2	65	8.1	9
CDRA002	CDRAS002	EAG-1001049	2/24/04	5.2	95	8.2	10
CDRM004	CDRMS004	EAG-1001048	2/24/04	2.1	116	8.2	11

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	2/26/04	0.1
STRM002	2/25/04	1.4
STRM003	2/25/04	4.9
STRW001	2/25/04	4.2
STRE001	2/25/04	11
YDRM001	2/26/04	14
YDRM002	2/26/04	15
YDRM003	2/26/04	14
CDRA002	2/25/04	1.5
CDRM004	2/25/04	12

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/18/04
Weather:	Sunny, breezy, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	STRM001	**Sampling time:**	1410
Sample ID:	STRMS001		
KEX ID:	EAG-1001046		
		Temperature (^{o}C):	0.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	41
Appearance:	Clear; very slight	Conductivity (μmhos):	21
	suspended sediment	pH (SU):	7.8
		D.O. (ppm):	4.5

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Very slow flow.

Meter units: ft/sec

Flow Measurement 2/26/04 DWW/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	1.9	0.02	1.4	0.03
1.5	1.0	2.0	0.04	2.0	0.08
2.5	1.0	1.9	0.00	1.9	0.00
3.5	1.0	1.9	0.01	1.9	0.02
4.5	0.8	0.6	0.00	0.5	0.00
5.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **0.1**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/18/04
Weather:	Sunny, breezy, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	STRM002	**Sampling time:**	1320
Sample ID:	STRMS002		
KEX ID:	EAG-1001045		
		Temperature (^{o}C):	0.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	70
Appearance:	Very slight tannin; slight	Conductivity (μmhos):	36
	suspended sediment	pH (SU):	8.3
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Open flow, drifts over channel, little ice

Meter units: ft/sec

Flow Measurement 2/25/04 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.4	<0.1	0.00	0.0	0.00
0.8	0.3	0.1	0.00	0.0	0.00
1.0	0.3	0.4	0.47	0.1	0.04
1.3	0.4	0.4	0.36	0.2	0.05
1.8	0.5	0.6	0.66	0.3	0.20
2.3	0.5	0.6	0.69	0.3	0.21
2.8	0.5	0.8	0.67	0.4	0.25
3.3	0.5	0.8	0.72	0.4	0.29
3.8	0.5	0.8	0.43	0.4	0.17
4.3	0.5	0.5	0.34	0.3	0.09
4.8	0.5	0.3	0.33	0.1	0.04
5.3	0.6	0.1	0.00	0.1	0.00
6.0	0.4	0.3	0.25	0.1	0.02

Total Flow: **1.4**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/24/04
Weather:	Partly sunny, calm, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	STRM003	**Sampling time:**	1555
Sample ID:	STRMS003		
KEX ID:	EAG-1001052		
		Temperature (^{o}C):	2.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	94
Appearance:	Clear; suspended	Conductivity (μmhos):	52
	sediment	pH (SU):	7.9
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Stream open and flowing.

Meter units: ft/sec

Flow Measurement 2/25/04 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.3	0.00	0.2	0.00
1.5	1.0	0.5	0.20	0.5	0.10
2.5	1.0	0.7	0.58	0.7	0.41
3.5	1.0	0.8	0.78	0.8	0.59
4.5	1.0	0.7	0.78	0.7	0.55
5.5	1.0	0.7	0.72	0.7	0.47
6.5	1.0	0.8	0.70	0.8	0.53
7.5	1.0	0.8	0.59	0.8	0.44
8.5	1.0	0.7	0.56	0.7	0.39
9.5	1.0	0.7	0.67	0.7	0.47
10.5	1.0	0.8	0.59	0.8	0.44
11.5	1.0	0.8	0.46	0.8	0.37
12.5	0.8	0.7	0.21	0.5	0.11
13.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **4.9**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/24/04
Weather:	Partly sunny, calm, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	STRW001	**Sampling time:**	1518
Sample ID:	STRWS001		
KEX ID:	EAG-1001051		
		Temperature (^{o}C):	1.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	118
Appearance:	Clear; suspended	Conductivity (μmhos):	62
	sediment	pH (SU):	7.7
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Stream open and flowing.

Masked duplicate (DUP001) (EAG-1001054) collected here.

Meter units: ft/sec

Flow Measurement 2/25/04 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.2	0.00	0.1	0.00
1.5	1.0	0.6	0.05	0.6	0.03
2.5	1.0	1.2	0.30	1.2	0.36
3.5	1.0	1.7	0.58	1.7	0.96
4.5	1.0	1.7	0.64	1.7	1.06
5.5	1.0	1.4	0.63	1.4	0.85
6.5	1.0	1.3	0.55	1.3	0.69
7.5	0.8	0.9	0.47	0.6	0.30
8.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **4.2**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/24/04
Weather:	Partly sunny, calm, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	STRE001	**Sampling time:**	1640
Sample ID:	STRES001		
KEX ID:	EAG-1001053		
		Temperature (^{o}C):	3.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	128
Appearance:	Clear; suspended	Conductivity (μmhos):	76
	sediment	pH (SU):	7.8
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Flowing, ice free.

Meter units: ft/sec

Flow Measurement 2/25/04 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.5	0.46	0.4	0.17
1.5	1.0	0.7	0.73	0.7	0.51
2.5	1.0	0.8	0.85	0.8	0.64
3.5	1.0	0.9	1.18	0.9	1.06
4.5	1.0	1.0	1.05	1.0	1.05
5.5	1.0	1.0	0.91	1.0	0.91
6.5	1.0	1.1	0.74	1.1	0.81
7.5	1.0	1.4	1.18	1.4	1.59
8.5	1.0	1.5	0.80	1.5	1.20
9.5	1.0	1.7	0.93	1.7	1.58
10.5	1.0	1.7	0.42	1.7	0.71
11.5	1.0	1.0	0.12	1.0	0.12
12.5	1.0	1.0	0.24	1.0	0.23
13.5	0.8	0.8	0.01	0.6	0.01
14.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **11**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/18/04
Weather:	Sunny, breezy, ~40°s F	**Sampler(s):**	PJS/DWW
Location:	YDRM001	**Sampling time:**	1205
Sample ID:	YDRMS001		
KEX ID:	EAG-1001043		
		Temperature (^{o}C):	0.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	73
Appearance:	Slight tannin; suspended sediment	Conductivity (μmhos):	37
		pH (SU):	8.1
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Thin ice, open at bank.

Meter units: ft/sec

Flow Measurement 2/26/04 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.5	1.1	0.01	1.7	0.02
3.0	2.0	2.1	0.16	4.2	0.67
5.0	2.0	2.5	0.27	5.0	1.35
7.0	2.0	3.0	0.50	6.0	3.00
9.0	2.0	3.1	0.81	6.1	4.94
11.0	2.0	2.9	0.56	5.7	3.19
13.0	1.5	2.3	0.25	3.5	0.86
14.0	1.5	2.0	-0.06	3.0	-0.18
16.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **14**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/18/04
Weather:	Sunny, ~25° F	**Sampler(s):**	DWW/PJS
Location:	YDRM002	**Sampling time:**	1045
Sample ID:	YDRMS002		
KEX ID:	EAG-1001044		
		Temperature (^{o}C):	0.3
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	74
Appearance:	Slight tannin; no visible sediment	Conductivity (μmhos):	37
		pH (SU):	8.5
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Ice thin on edges and slushy 0-4" thick.

Meter units: ft/sec

Flow Measurement 2/26/04 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.8	0.94	0.6	0.53
1.5	1.0	1.2	1.44	1.2	1.73
2.5	1.0	1.6	1.59	1.6	2.46
3.5	1.0	1.9	1.33	1.9	2.53
4.5	1.0	1.9	1.40	1.9	2.66
5.5	1.0	1.9	1.27	1.9	2.41
6.5	1.0	1.8	1.20	1.8	2.10
7.5	0.8	1.2	0.89	0.9	0.80
8.0	0.5	0.7	0.39	0.4	0.14
8.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **15**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/19/04
Weather:	Overcast, ~20s° F	**Sampler(s):**	DWW/PJS
Location:	YDRM003	**Sampling time:**	1255
Sample ID:	YDRMS003		
KEX ID:	EAG-1001047		
		Temperature (^{o}C):	0.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	65
Appearance:	Slight tannin	Conductivity (μmhos):	33
		pH (SU):	8.1
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Flowing under 0-3" ice cover.

Meter units: ft/sec

Flow Measurement 2/26/04 DWW/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.5	1.1	-0.01	1.7	-0.02
3.0	2.0	1.7	0.39	3.4	1.33
5.0	2.0	2.1	0.44	4.2	1.85
7.0	2.0	2.4	0.81	4.7	3.81
9.0	2.0	2.5	0.77	5.0	3.85
11.0	2.0	2.3	0.51	4.6	2.35
13.0	1.5	1.8	0.42	2.7	1.13
14.0	1.0	0.9	0.18	0.9	0.16
15.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **14**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/24/04
Weather:	Overcast, flurries, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	CDRA002	**Sampling time:**	1150
Sample ID:	CDRAS002		
KEX ID:	EAG-1001049		
		Temperature (^{o}C):	5.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	95
Appearance:	Clear	Conductivity (μmhos):	60
		pH (SU):	8.2
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Stream flowing and open. Seeps above CDRA002 on terrace slope bare and flowing.

Meter units: ft/sec

Flow Measurement 2/25/04 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.1	0.0	0.00	0.0	0.00
0.3	0.4	0.1	0.00	0.0	0.00
0.8	0.5	0.4	0.31	0.2	0.06
1.3	0.5	0.5	2.54	0.3	0.64
1.8	0.5	0.5	2.64	0.3	0.66
2.3	0.5	0.4	0.42	0.2	0.08
2.8	0.5	0.4	0.55	0.2	0.10
3.3	0.4	0.2	-0.02	0.1	0.00
3.5	0.1	0.0	0.00	0.0	0.00

Total Flow: **1.5**

Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/24/04
Weather:	Overcast, flurries, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	CDRM004	**Sampling time:**	1055
Sample ID:	CDRMS004		
KEX ID:	EAG-1001048		
		Temperature (^{o}C):	2.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	116
Appearance:	Very clear; very slight	Conductivity (μmhos):	65
	suspended sediment	pH (SU):	8.2
		D.O. (ppm):	11

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Stream is flowing and open.

Meter units: ft/sec

Flow Measurement 2/25/04 DWW/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.3	1.5	0.86	1.9	1.61
2.5	1.3	1.7	0.86	2.1	1.83
3.5	1.0	2.0	0.81	2.0	1.62
4.5	1.0	1.9	0.84	1.9	1.60
5.5	1.0	1.6	0.75	1.6	1.20
6.5	1.0	1.5	0.71	1.5	1.07
7.5	1.0	1.5	0.70	1.5	1.02
8.5	1.0	1.4	0.68	1.4	0.95
9.5	1.0	1.1	0.61	1.1	0.67
10.5	1.0	1.0	0.54	1.0	0.54
11.5	1.0	0.9	0.35	0.9	0.30
12.5	0.8	0.7	0.04	0.5	0.02
13.0	0.8	0.8	0.01	0.6	0.01
14.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **12**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 3/31/04, 4/6/04, 4/7/04, 4/8/04, 4/13/04, 4/14/04, 4/15/04, 4/28/04, and 4/29/04

Activities: Collected surface water samples from the Salmon Trout (STRM001, STRM002, STRM003, STRW001 and STRE001), Yellow Dog (YDRM001, YDRM002 and YDRM003), and Cedar River (CDRA002 and CDRM004) monitoring locations.

Completed 8 flow measurements on 4/6-4/8/04.

Collected groundwater samples at WLD001, WLD006, WLD016, WLD021, QAL001A/D, QAL002A/D, QAL003A/B, QAL004A/D, QAL005A/D, and QAL006A/B.

Collected duplicate, field blank and equipment blank samples.

Collected water elevations on 5/11/04.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	8
Water Sampling Log	26
Chain of Custody Numbers	67906-67908, 098713, 098714, 098716, 096328, 93280, 93281

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Pete Kero (PMK), Peter Sabee (PJS), Kari Paulson (KMP) and Dan Wiitala (DWW)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STRMS001	EAG-1001063	4/7/04	1.6	27	6.7	7
STRM002	STRMS002	EAG-1001062	4/7/04	3.7	41	6.8	8
STRM003	STRMS003	EAG-1001064	4/7/04	4.7	65	7.2	10
STRW001	STRWS001	EAG-1001065	4/7/04	2.6	58	6.9	10
STRE001	STRES001	EAG-1001066	4/7/04	5.7	84	7.2	8
YDRM001	YDRMS001	EAG-1001059	4/7/04	1.0	29	6.5	10
YDRM002	YDRMS002	EAG-1001060	4/6/04	3.1	28	6.4	9
YDRM003	YDRMS003	EAG-1001061	4/6/04	2.1	31	7.2	8
CDRA002	CDRAS002	EAG-1001069	4/8/04	6.5	93	7.7	8
CDRM004	CDRMS004	EAG-1001068	4/8/04	3.4	84	7.3	8

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	NM	NM
STRM002	4/7/04	4.2
STRM003	4/7/04	13
STRW001	4/7/04	20
STRE001	4/7/04	25
YDRM001	NM	NM
YDRM002	4/6/04	91
YDRM003	4/6/04	53
CDRA002	4/8/04	1.9
CDRM004	4/8/04	22

NM Not measured

North Jackson Company
Groundwater Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)	Ferrous Iron (mg/L)
WLD001	WLDP001	EAG-1001058	3/31/04	3.9	162	7.2	0.4	1.5
WLD006	WLDP006	EAG-1001056	3/31/04	3.1	38	6.9	<0.05	9
WLD016	WLDP016	EAG-1001057	3/31/04	4.4	146	7.6	1.5	<0.1
WLD021	WLDP021	EAG-1001055	3/31/04	3.1	36	6.6	<0.05	1.5
QAL001A	QALM001A	EAG-1001092	4/14/04	7.3	66	9.1	8	0.15
QAL001D	QALM001D	EAG-1001093	4/15/04	7.2	197	9.0	0.003	<0.1
QAL002A	QALM002A	EAG-1001101	4/28/04	7.5	58	9.1	5	<0.1
QAL002D	QALM002D	EAG-1001100	4/29/04	9.2	199	8.0	0.9	0.3
QAL003A	QALM003A	EAG-1001087	4/13/04	8.1	158	8.1	3	0.3
QAL003B	QALM003B	EAG-1001088	4/13/04	7.8	158	8.2	0.3	0.4
QAL004A	QALM004A	EAG-1001090	4/14/04	7.1	90	8.9	5	0.15
QAL004D	QALM004D	EAG-1001091	4/14/04	7.5	155	8.6	<0.001	0.15
QAL005A	QALM005A	EAG-1001094	4/15/04	6.6	22	7.1	2	0.3
QAL005D	QALM005D	EAG-1001095	4/15/04	7.6	169	8.0	<0.001	0.4
QAL006A	QALM006A	EAG-1001096	4/28/04	5.9	19	6.1	4	0.5
QAL006B	QALM006B	EAG-1001098	4/28/04	8.0	198	6.9	<0.001	12

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
WLD001	5/11/04	1430.41	1.45	8	1428.96
WLD002	5/11/04	1433.12	2.39	8	1430.73
WLD003	5/11/04	1435.66	1.82	8	1433.84
WLD004	5/11/04	1448.91	2.41	8	1446.50
WLD005	5/11/04	1453.50	2.27	8	1451.23
WLD006	5/11/04	1459.29	3.78	8	1455.51
WLD007	5/11/04	1453.70	3.00	8	1450.70
WLD008	5/11/04	1456.60	3.01	8	1453.59
WLD009	5/11/04	1460.17	3.08	8	1457.09
WLD010	5/11/04	1450.90	3.41	8	1447.49
WLD011	5/11/04	1449.51	2.71	8	1446.80
WLD012	5/11/04	1448.60	2.38	8	1446.22
WLD013	5/11/04	1447.81	2.81	8	1445.00
WLD014	5/11/04	1443.47	1.83	8	1441.64
WLD015	5/11/04	1431.28	2.30	8	1428.98
WLD016	5/11/04	1432.34	3.90	8	1428.44
WLD017	5/11/04	1427.70	4.06	8	1423.64
WLD018	5/11/04	1427.34	4.21	8	1423.13
WLD019	5/11/04	1424.93	3.91	8	1421.02
WLD020	5/11/04	1424.13	3.96	8	1420.17
WLD021	5/11/04	1420.58	4.54	8	1416.04
WLD022	5/11/04	1425.66	3.05	8	1422.61
WLD023	5/11/04	1416.42	2.83	8	1413.59
QAL001A	5/11/04	1462.92	51.98*	68	1410.94
QAL001D	5/11/04	1462.81	57.64*	88	1405.17
QAL002A	5/11/04	1479.54	45.68*	63	1433.86
QAL002D	5/11/04	1479.21	87.30*	143	1391.91
QAL003A	5/11/04	1436.95	8.87	33	1428.08
QAL003B	5/11/04	1436.48	22.29	50	1414.19
QAL004A	5/11/04	1451.09	24.65	58	1426.44
QAL004D	5/11/04	1450.94	16.53	148	1434.41
QAL005A	5/11/04	1459.74	4.04	28	1455.70
QAL005D	5/11/04	1459.59	5.63	130	1453.96
QAL006A	5/11/04	1423.92	7.43	28	1416.49
QAL006B	5/11/04	1424.33	22.86	83	1401.47

* Dedicated pumps had to be removed for measurement. Value is estimate because of slow recharge.

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/7/04
Weather:	Sunny, ~30°s F	**Sampler(s):**	PMK/PJS
Location:	STRM001	**Sampling time:**	1030
Sample ID:	STRMS001		
KEX ID:	EAG-1001063		
		Temperature (^{o}C):	1.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	27
Appearance:	Clear	Conductivity (μmhos):	15
		pH (SU):	6.7
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: No flow measurement because too much flow is outside banks.

Flow Measurement None

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/7/04
Weather:	Sunny, ~30°s F	**Sampler(s):**	PMK/PJS
Location:	STRM002	**Sampling time:**	1100
Sample ID:	STRMS002		
KEX ID:	EAG-1001062		
		Temperature (^{o}C):	3.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	41
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	6.8
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 4/7/04 PMK/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.2	0.06	0.1	0.00
0.5	0.5	0.2	0.96	0.1	0.10
1.0	0.5	0.2	0.74	0.1	0.07
1.5	0.5	0.3	1.20	0.2	0.18
2.0	0.5	0.3	0.77	0.2	0.12
2.5	0.5	0.4	1.24	0.2	0.25
3.0	0.5	0.5	1.15	0.3	0.29
3.5	0.5	0.8	1.48	0.4	0.59
4.0	0.5	0.8	1.34	0.4	0.54
4.5	0.5	0.9	1.23	0.5	0.55
5.0	0.5	0.9	1.23	0.5	0.55
5.5	0.5	0.9	1.09	0.5	0.49
6.0	0.5	0.8	0.75	0.4	0.30
6.5	0.5	0.7	0.35	0.4	0.12
7.0	0.5	0.6	0.00	0.3	0.00
7.5	0.3	0.5	0.00	0.1	0.00

Total Flow: **4.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/7/04
Weather:	Sunny, ~50°s F	**Sampler(s):**	PMK/PJS
Location:	STRM003	**Sampling time:**	1415
Sample ID:	STRMS003		
KEX ID:	EAG-1001064		
		Temperature (^{o}C):	4.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	65
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	7.2
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 4/7/04 PMK/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.6	0.24	0.3	0.07
1.0	1.0	1.0	0.40	1.0	0.40
2.0	1.0	1.3	0.69	1.3	0.90
3.0	1.0	1.4	0.85	1.4	1.19
4.0	1.0	1.5	1.05	1.5	1.58
5.0	1.0	1.6	1.17	1.6	1.87
6.0	1.0	1.5	1.03	1.5	1.55
7.0	1.0	1.4	0.82	1.4	1.15
8.0	1.0	1.3	1.06	1.3	1.38
9.0	1.0	1.2	1.00	1.2	1.20
10.0	1.0	0.9	0.96	0.9	0.86
11.0	1.0	0.8	0.60	0.8	0.48
12.0	1.0	0.4	0.09	0.4	0.04
13.0	0.8	0.1	0.00	0.1	0.00
13.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **13**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/7/04
Weather:	Sunny, ~40°s F	**Sampler(s):**	PMK/PJS
Location:	STRW001	**Sampling time:**	1320
Sample ID:	STRWS001		
KEX ID:	EAG-1001065		
		Temperature (^{o}C):	2.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	58
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	6.9
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Masked duplicate sample (DUPS001, EAG-1001067) collected here.

Meter units: ft/sec

Flow Measurement 4/7/04 PMK/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.5	-0.16	0.5	-0.08
2.0	1.0	1.2	0.15	1.2	0.18
3.0	1.0	1.4	0.95	1.4	1.33
4.0	1.0	1.9	1.20	1.9	2.28
5.0	1.0	2.2	1.42	2.2	3.12
6.0	1.0	2.5	1.42	2.5	3.55
7.0	1.0	2.3	1.43	2.3	3.29
8.0	1.0	1.9	1.51	1.9	2.87
9.0	1.0	1.6	1.40	1.6	2.24
10.0	0.8	1.6	0.72	1.2	0.86
10.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **20**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/7/04
Weather:	Sunny, ~50°s F	**Sampler(s):**	PMK/PJS
Location:	STRE001	**Sampling time:**	1515
Sample ID:	STRES001		
KEX ID:	EAG-1001066		
		Temperature (^{o}C):	5.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	84
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	7.2
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 4/7/04 PMK/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.8	-0.04	0.4	-0.02
1.0	1.0	1.7	0.31	1.7	0.53
2.0	1.0	2.2	0.12	2.2	0.26
3.0	1.0	2.4	0.69	2.4	1.66
4.0	1.0	2.5	1.20	2.5	3.00
5.0	1.0	2.4	1.41	2.4	3.38
6.0	1.0	2.0	1.20	2.0	2.40
7.0	1.0	1.9	1.32	1.9	2.51
8.0	1.0	1.9	1.02	1.9	1.94
9.0	1.0	1.6	0.94	1.6	1.50
10.0	1.0	1.5	1.27	1.5	1.91
11.0	1.0	1.4	1.04	1.4	1.46
12.0	1.0	1.4	1.12	1.4	1.57
13.0	1.0	1.2	1.08	1.2	1.30
14.0	1.0	1.1	0.78	1.1	0.86
15.0	1.0	0.5	0.62	0.5	0.31
16.0	1.0	0.3	0.47	0.3	0.14
17.0	0.8	0.1	0.00	0.1	0.00
17.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **25**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/7/04
Weather:	Sunny, ~30°s F	**Sampler(s):**	PMK/PJS
Location:	YDRM001	**Sampling time:**	1000
Sample ID:	YDRMS001		
KEX ID:	EAG-1001059		
		Temperature (^{o}C):	1.0
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	29
Appearance:	Clear	Conductivity (μmhos):	15
		pH (SU):	6.5
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: No stream gauging because water is too deep, plus many rivulets outside bank would make this reading inaccurate.

Flow Measurement None

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/6/04
Weather:	Sunny, ~40°s F	**Sampler(s):**	PMK/PJS
Location:	YDRM002	**Sampling time:**	1500
Sample ID:	YDRMS002		
KEX ID:	EAG-1001060		
		Temperature (^{o}C):	3.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	28
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	6.4
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 4/6/04 PMK/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.3	0.12	0.3	0.04
2.0	1.0	0.6	1.76	0.6	1.06
3.0	1.0	1.6	2.38	1.6	3.81
4.0	1.0	2.4	3.45	2.4	8.28
5.0	1.0	2.9	3.69	2.9	10.70
6.0	1.0	3.4	3.44	3.4	11.70
7.0	1.0	3.5	3.77	3.5	13.20
8.0	1.0	3.5	3.41	3.5	11.94
9.0	1.0	3.5	3.33	3.5	11.66
10.0	1.0	3.3	2.05	3.3	6.77
11.0	1.0	2.7	2.03	2.7	5.48
12.0	1.0	2.0	2.24	2.0	4.48
13.0	1.0	1.3	1.26	1.3	1.64
14.0	0.8	0.7	0.85	0.5	0.45
14.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **91**

North Jackson Company
Surface Water Sampling Log

Proj. Name: Eagle BES
Weather: Sunny, ~40°s F
Location: YDRM003
Sample ID: YDRMS003
KEX ID: EAG-1001061

Date: 4/6/04
Sampler(s): PMK/PJS
Sampling time: 1200

Odor: None
Appearance: Clear

Temperature (^{o}C): 2.1
Spec. Cond. (µmhos/cm @ 25°C): 31
Conductivity (µmhos): NM
pH (SU): 7.2
D.O. (ppm): 8

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes
Remarks:

Meter units: ft/sec

Flow Measurement 4/6/04 PMK/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.7	0.10	0.7	0.07
2.0	1.0	1.0	0.13	1.0	0.13
3.0	1.0	1.1	0.34	1.1	0.37
4.0	1.0	1.5	0.24	1.5	0.36
5.0	1.0	2.0	0.36	2.0	0.72
6.0	1.0	2.2	0.87	2.2	1.91
7.0	1.0	2.7	0.83	2.7	2.24
8.0	1.0	3.1	1.10	3.1	3.41
9.0	1.0	3.2	1.20	3.2	3.84
10.0	1.0	3.4	1.34	3.4	4.56
11.0	1.0	3.7	1.40	3.7	5.18
12.0	1.0	3.7	1.49	3.7	5.51
13.0	1.0	3.6	1.55	3.6	5.58
14.0	1.0	3.3	1.50	3.3	4.95
15.0	1.0	3.4	1.52	3.4	5.17
16.0	1.0	3.1	1.10	3.1	3.41
17.0	1.0	2.9	0.84	2.9	2.44
18.0	1.0	2.9	0.69	2.9	2.00
19.0	1.0	1.9	0.62	1.9	1.18
20.0	1.0	0.4	0.00	0.4	0.00
21.0	1.0	0.3	0.00	0.3	0.00
22.0	1.0	0.2	0.00	0.2	0.00
23.0	1.0	0.1	0.00	0.1	0.00
24.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **53**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/8/04
Weather:	Overcast, ~40°s F	**Sampler(s):**	PMK/KMP
Location:	CDRA002	**Sampling time:**	1400
Sample ID:	CDRAS002		
KEX ID:	EAG-1001069		
		Temperature (^{o}C):	6.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	93
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	7.7
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 4/8/04 PMK/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	0.8	0.4	0.29	0.3	0.09
1.5	0.5	0.4	1.35	0.2	0.27
2.0	0.5	0.5	2.82	0.3	0.71
2.5	0.5	0.4	2.72	0.2	0.54
3.0	0.5	0.4	1.45	0.2	0.29
3.5	0.5	0.2	0.03	0.1	0.00
4.0	0.3	0.2	0.00	0.1	0.00

Total Flow: **1.9**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/8/04
Weather:	Overcast, ~40°s F	**Sampler(s):**	PMK/KMP
Location:	CDRM004	**Sampling time:**	1230
Sample ID:	CDRMS004		
KEX ID:	EAG-1001068		
		Temperature (^{o}C):	3.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	84
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	7.3
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 4/8/04 PMK/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0	0.00
1.0	1.0	0.6	0.11	0.6	0.07
2.0	1.0	1.9	0.28	1.9	0.53
3.0	1.0	1.2	0.88	1.2	1.06
4.0	1.0	1.3	0.67	1.3	0.87
5.0	1.0	1.3	1.11	1.3	1.44
6.0	1.0	1.1	0.58	1.1	0.64
7.0	1.0	1.9	1.51	1.9	2.87
8.0	1.0	1.2	1.11	1.2	1.33
9.0	1.0	1.2	1.40	1.2	1.68
10.0	1.0	1.1	1.11	1.1	1.22
11.0	1.0	1.5	1.40	1.5	2.10
12.0	1.0	1.4	1.64	1.4	2.30
13.0	1.0	1.3	1.55	1.3	2.02
14.0	1.0	1.3	1.16	1.3	1.51
15.0	1.0	1.9	1.10	1.9	2.09
16.0	1.0	1.7	0.20	1.7	0.34
17.0	1.0	0.3	0.11	0.3	0.03
18.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **22**

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/31/04
Weather:	Sunny, ~40°s F, light NW wind	**Sampler(s):**	PJS/KMP
Location:	WLD001	**Sampling time:**	1450
Sample ID:	WLDP001		
KEX ID:	EAG-1001058		
		Temperature (^{o}C):	3.9
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	162
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	7.2
		D.O. (ppm):	0.4
		Ferrous Iron (mg/L):	1.5

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal	prior to sampling:	~8
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	2	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1440	3.9	162	7.3	5
1443	3.9	162	7.3	6
1446	3.8	162	7.2	7
1449	3.9	162	7.2	8

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/31/04
Weather:	Sunny, ~40°s F, light NW wind	**Sampler(s):**	PJS/KMP
Location:	WLD006	**Sampling time:**	1330
Sample ID:	WLDP006		
KEX ID:	EAG-1001056		

		Temperature (^{o}C):	3.1
Odor:	Mild hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	38
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	6.9
		D.O. (ppm):	<0.05
		Ferrous Iron (mg/L):	9

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	3	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal	prior to sampling:	~30
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	2	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1310	3.2	38	7	10
1311	3.1	38	6.9	11
1312	3.1	38	6.9	12

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/31/04
Weather:	Sunny, ~40°s F, light NW wind	**Sampler(s):**	PJS/KMP
Location:	WLD016	**Sampling time:**	1410
Sample ID:	WLDP016		
KEX ID:	EAG-1001057		
		Temperature (^{o}C):	4.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	146
Appearance:	Clear	Conductivity (µmhos):	NM
		pH (SU):	7.6
		D.O. (ppm):	1.5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	3	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal	prior to sampling:	~25
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	2	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1356	4.4	145	7.5	11
1357	4.4	146	7.6	12
1358	4.4	146	7.6	13
1359	4.4	146	7.6	14

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/31/04
Weather:	Sunny, ~40°s F, light NW wind	**Sampler(s):**	PJS/KMP
Location:	WLD021	**Sampling time:**	1200
Sample ID:	WLDP021		
KEX ID:	EAG-1001055		

		Temperature (^{o}C):	3.1
Odor:	Slight hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	36
Appearance:	Clear with yellow	Conductivity (μmhos):	NM
	tinge	pH (SU):	6.6
		D.O. (ppm):	<0.05
		Ferrous Iron (mg/L):	1.5

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	3	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal	prior to sampling:	~30
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	2	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1140	3.3	34	9.2	10
1145	3.1	36	6.7	15
1150	3.1	36	6.7	20
1155	3.1	36	6.6	25

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/14/04
Weather:	Sunny, ~35° F	**Sampler(s):**	DWW/PJS
Location:	QAL001A	**Sampling time:**	1502
Sample ID:	QALM001A		
KEX ID:	EAG-1001092		
		Temperature (^{o}C):	7.3
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	66
Appearance:	Clear	Conductivity (μmhos):	43
		pH (SU):	9.1
		D.O. (ppm):	8
		Ferrous Iron (mg/L):	0.15

Description of measuring point: Mark on PVC riser

Total depth:	68	ft	Well diameter (in):	2	
Approx. Depth to water:	52	ft			
Water column in well:	16	ft	Gallons purged		
Volume/foot:	0.16	gal	prior to sampling:	~15	
Well volume:	3	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.8 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1444	7.1	67	9.3	3
1451	7.2	66	9.2	6
1455	7.2	65	9.1	9
1502	7.3	66	9.1	15

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/15/04
Weather:	Sunny, dry, breezy, ~25° F	**Sampler(s):**	DWW/PJS
Location:	QAL001D	**Sampling time:**	1100
Sample ID:	QALM001D		
KEX ID:	EAG-1001093		

		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	197
Appearance:	Slightly cloudy	Conductivity (μmhos):	131
		pH (SU):	9.0
		D.O. (ppm):	0.003
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	88	ft	Well diameter (in):	2.5
Approx. Depth to water:	57	ft		
Water column in well:	31	ft	Gallons purged	
Volume/foot:	0.26	gal	prior to sampling:	~39
Well volume:	8	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Goes dry so no stabilization record.

Well condition excellent. Replaced one whale pump.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/28/04
Weather:	Sunny, breezy, ~50°s F	**Sampler(s):**	DWW
Location:	QAL002A	**Sampling time:**	1120
Sample ID:	QALM002A		
KEX ID:	EAG-1001101		
		Temperature (^{o}C):	7.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	58
Appearance:	Clear	Conductivity (μmhos):	39
		pH (SU):	9.1
		D.O. (ppm):	5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	63	ft	Well diameter (in):	2	
Approx. Depth to water:	46	ft			
Water column in well:	17	ft	Gallons purged		
Volume/foot:	0.16	gal	prior to sampling:	~21	
Well volume:	3	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Masked duplicate sample (DUP001, EAG-1001102) collected here.

Pump rate ~0.6 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1106	7.5	58	9.1	12
1111	7.5	58	9.1	15
1116	7.4	58	9.1	18
1120	7.5	58	9.1	21

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/29/04
Weather:	Clear, calm, ~30°s F	**Sampler(s):**	PJS/KMP
Location:	QAL002D	**Sampling time:**	1400
Sample ID:	QALM002D		
KEX ID:	EAG-1001100		
		Temperature (^{o}C):	9.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	199
Appearance:	Slightly cloudy	Conductivity (μmhos):	140
		pH (SU):	8.0
		D.O. (ppm):	0.9
		Ferrous Iron (mg/L):	0.3

Description of measuring point: Mark on PVC riser

Total depth:	143	ft	Well diameter (in):	2.5
Approx. Depth to water:	84	ft		
Water column in well:	59	ft	Gallons purged	
Volume/foot:	0.26	gal	prior to sampling:	~15
Well volume:	15	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well was purged and developed on 4/28/04.

Well goes dry so no stabilization record. Well condition excellent.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/13/04
Weather:	Overcast, breezy, ~30°s F	**Sampler(s):**	PJS/KMP
Location:	QAL003A	**Sampling time:**	1415
Sample ID:	QALM003A		
KEX ID:	EAG-1001087		

		Temperature (^{o}C):	8.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	158
Appearance:	Slightly turbid	Conductivity (µmhos):	107
		pH (SU):	8.1
		D.O. (ppm):	3
		Ferrous Iron (mg/L):	0.3

Description of measuring point: Mark on PVC riser

Total depth:	33	ft	Well diameter (in):	2	
Approx. Depth to water:	9	ft			
Water column in well:	24	ft	Gallons purged		
Volume/foot:	0.16	gal	prior to sampling:	~30	
Well volume:	4	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1330	8.2	160	8.1	19
1345	8.1	159	8.1	22
1400	8.1	158	8.1	26
1405	8.1	158	8.1	27

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/13/04
Weather:	Overcast, breezy, ~30°s F	**Sampler(s):**	PJS/KMP
Location:	QAL003B	**Sampling time:**	1445
Sample ID:	QALM003B		
KEX ID:	EAG-1001088		

		Temperature (^{o}C):	7.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	158
Appearance:	Clear	Conductivity (μmhos):	106
		pH (SU):	8.2
		D.O. (ppm):	0.3
		Ferrous Iron (mg/L):	0.4

Description of measuring point: Mark on PVC riser

Total depth:	50	ft	Well diameter (in):	2.5
Approx. Depth to water:	21	ft		
Water column in well:	29	ft	Gallons purged	
Volume/foot:	0.26	gal	prior to sampling:	~90
Well volume:	7	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.75 gpm. Well condition excellent.

Masked duplicate (DUP001, EAG-1001089) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1420	7.8	159	8.0	71
1428	7.8	159	8.1	77
1443	7.8	158	8.2	89
1445	7.8	158	8.2	90

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/14/2004
Weather:	Sunny, ~35° F	**Sampler(s):**	DWW/PJS
Location:	QAL004A	**Sampling time:**	1220
Sample ID:	QALM004A		
KEX ID:	EAG-1001090		

		Temperature (^{o}C):	7.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	90
Appearance:	Clear	Conductivity (µmhos):	59
		pH (SU):	8.9
		D.O. (ppm):	5
		Ferrous Iron (mg/L):	0.15

Description of measuring point: Mark on PVC riser

Total depth:	58	ft	Well diameter (in):	2	
Approx. Depth to water:	26	ft			
Water column in well:	32	ft	Gallons purged		
Volume/foot:	0.16	gal	prior to sampling:	~79	
Well volume:	5	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1.1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1156	7.2	89	8.9	50
1204	7.1	89	8.9	60
1210	7.1	89	8.9	67
1220	7.1	90	8.9	79

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/14/04
Weather:	Sunny, ~35° F	**Sampler(s):**	DWW/PJS
Location:	QAL004D	**Sampling time:**	1245
Sample ID:	QALM004D		
KEX ID:	EAG-1001091		
		Temperature (^{o}C):	7.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	155
Appearance:	Clear	Conductivity (μmhos):	103
		pH (SU):	8.6
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.15

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5	
Approx. Depth to water:	17	ft			
Water column in well:	131	ft	Gallons purged		
Volume/foot:	0.26	gal	prior to sampling:	~130	
Well volume:	34	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1.6 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1144	7.5	155	8.8	42
1228	7.5	155	8.6	120
1245	7.5	155	8.6	130

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/15/04
Weather:	Sunny, dry, breezy, ~25° F	**Sampler(s):**	DWW/PJS
Location:	QAL005A	**Sampling time:**	1200
Sample ID:	QALM005A		
KEX ID:	EAG-1001094		

		Temperature (^{o}C):	6.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	22
Appearance:	Clear	Conductivity (μmhos):	14
		pH (SU):	7.1
		D.O. (ppm):	2
		Ferrous Iron (mg/L):	0.3

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	3	ft		
Water column in well:	25	ft	Gallons purged	
Volume/foot:	0.16	gal	prior to sampling:	~52
Well volume:	4	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1156	6.6	22	7.3	40
1158	6.6	22	7.1	48
1200	6.6	22	7.1	52

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/15/04
Weather:	Sunny, dry, breezy, ~25° F	**Sampler(s):**	DWW/PJS
Location:	QAL005D	**Sampling time:**	1445
Sample ID:	QALM005D		
KEX ID:	EAG-1001095		

		Temperature (^{o}C):	7.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	169
Appearance:	Very clear, no observable sediment	Conductivity (μmhos):	112
		pH (SU):	8.0
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.4

Description of measuring point: Mark on PVC riser

Total depth:	130	ft	Well diameter (in):	2.5	
Approx. Depth to water:	6	ft			
Water column in well:	124	ft	Gallons purged		
Volume/foot:	0.26	gal	prior to sampling:	~120	
Well volume:	32	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	**# Collected**	**Bottle**	**Preservative**	**Parameter**
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	**Temp (^{o}C)**	**Spec. Cond. (μmhos/cm @ 25°C)**	**pH (SU)**	**Volume Removed (gal)**
1320	7.6	170	7.9	70
1330	7.6	169	8.0	90
1345	7.6	169	8.0	120

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/28/04
Weather:	Sunny, breezy, ~50°s F	**Sampler(s):**	DWW/PJS
Location:	QAL006A	**Sampling time:**	1330
Sample ID:	QALM006A		
KEX ID:	EAG-1001096		
		Temperature (^{o}C):	5.9
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	19
Appearance:	Clear, no color	Conductivity (μmhos):	12
		pH (SU):	6.1
		D.O. (ppm):	4
		Ferrous Iron (mg/L):	0.5

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2	
Approx. Depth to water:	7	ft			
Water column in well:	21	ft	Gallons purged		
Volume/foot:	0.16	gal	prior to sampling:	~63	
Well volume:	3	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2.5 gpm. Well condition excellent.

Masked duplicate (DUP002, EAG-1001097) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1322	5.9	19	6.3	47
1328	5.9	19	6.2	57
1330	5.9	19	6.1	63

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/28/04
Weather:	Sunny, breezy, ~50°s F	**Sampler(s):**	DWW/PJS
Location:	QAL006B	**Sampling time:**	1410
Sample ID:	QALM006B		
KEX ID:	EAG-1001098		
		Temperature (^{o}C):	8.0
Odor:	Slight	Spec. Cond. (μmhos/cm @ 25°C):	198
Appearance:	Slight yellow-brown stain	Conductivity (μmhos):	134
		pH (SU):	6.9
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	12

Description of measuring point: Mark on PVC riser

Total depth:	83	ft	Well diameter (in):	2.5	
Approx. Depth to water:	23	ft			
Water column in well:	60	ft	Gallons purged		
Volume/foot:	0.26	gal	prior to sampling:	~104	
Well volume:	15	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Masked duplicate (DUP003, EAG-1001099) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1348	8.0	195	6.8	60
1400	8.1	196	6.8	84
1410	8.0	198	6.9	104

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 6/29/04, 6/30/04 and 7/6/04

Activities: Collected surface water samples from the Salmon Trout (STRM001, STRM002, STRM003, STRM004, STRW001, STRE001 and STRE002), Yellow Dog (YDRM002 and YDRM003) and Cedar River (CDRA002 and CDRM004) monitoring locations.

Completed 11 flow measurements at above locations on 6/29-6/30/04 and 7/6/04.

Collected duplicate, field blank and equipment blank samples.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	11
Water Sampling Log	11
Chain of Custody Numbers	191963, 191964, 87642

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Pete Kero (PMK), Peter Sabee (PJS), Kari Paulson (KMP) and Dan Wiitala (DWW)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STRMS001	EAG-1001121	6/30/04	21	68	8.7	3.5
STRM002	STRMS002	EAG-1001118	6/29/04	16	58	7.5	7
STRM003	STRMS003	EAG-1001113	6/29/04	14	87	7.8	8
STRM004	STRMS004	EAG-1001122	7/6/04	10	92	8.3	8
STRW001	STRWS001	EAG-1001117	6/29/04	15	121	7.5	7
STRE001	STRES001	EAG-1001111	6/29/04	16	83	8.1	8
STRE002	STRES002	EAG-1001112	6/30/04	13	90	8.9	7
YDRM002	YDRMS002	EAG-1001120	6/30/04	18	59	7.9	7
YDRM003	YDRMS003	EAG-1001119	6/30/04	20	47	6.7	8
CDRA002	CDRAS002	EAG-1001109	6/29/04	11	131	8.1	8
CDRM004	CDRMS004	EAG-1001108	6/29/04	16	122	8.1	7

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	6/30/04	0.1
STRM002	6/29/04	2.2
STRM003	6/29/04	6.3
STRM004	7/6/04	7.0
STRW001	6/29/04	3.6
STRE001	6/29/04	13
STRE002	6/30/04	12
YDRM002	6/30/04	19
YDRM003	6/30/04	16
CDRA002	6/29/04	1.7
CDRM004	6/29/04	11

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/30/04
Weather:	Partly cloudy, breezy, ~80°s F	**Sampler(s):**	PJS/KMP
Location:	STRM001	**Sampling time:**	1330
Sample ID:	STRMS001		
KEX ID:	EAG-1001121		
		Temperature (^{o}C):	21
Odor:	Slightly swampy	Spec. Cond. (μmhos/cm @ 25°C):	68
Appearance:	Tannin stained	Conductivity (μmhos):	63
		pH (SU):	8.7
		D.O. (ppm):	3.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 6/30/04 PJS/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	0.5	1.8	-0.02	0.9	-0.02
3.0	1.0	1.6	0.00	1.6	0.00
4.0	1.0	1.9	0.06	1.9	0.11
5.0	1.0	0.9	0.06	0.9	0.05
6.0	1.0	0.7	-0.03	0.7	-0.02
7.0	1.0	0.5	-0.01	0.5	-0.01
8.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **0.1**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/29/04
Weather:	Sunny, humid, ~70°s F	**Sampler(s):**	DWW
Location:	STRM002	**Sampling time:**	1215
Sample ID:	STRMS002		
KEX ID:	EAG-1001118		
		Temperature (^{o}C):	16
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	58
Appearance:	Slightly tannin stained,	Conductivity (μmhos):	48
	suspended sediment	pH (SU):	7.5
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: DEQ gage = 0.86'.

Meter units: ft/sec

Flow Measurement 6/29/04 DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.5	-0.01	0.4	0.00
1.5	1.0	0.6	0.85	0.6	0.51
2.5	1.0	0.8	0.82	0.8	0.66
3.5	1.0	0.9	0.94	0.9	0.85
4.5	1.0	0.9	0.34	0.9	0.31
5.5	1.0	0.6	0.14	0.6	0.08
6.5	1.0	0.6	-0.08	0.6	-0.05
7.5	1.0	0.5	-0.22	0.5	-0.11
8.5	0.8	0.1	0.00	0.1	0.00
9.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **2.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/29/04
Weather:	Sunny, hazy, breezy, ~70°s F	**Sampler(s):**	DWW
Location:	STRM003	**Sampling time:**	1445
Sample ID:	STRMS003		
KEX ID:	EAG-1001113		
		Temperature (^{o}C):	14
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	87
Appearance:	Clear	Conductivity (μmhos):	69
		pH (SU):	7.8
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 6/29/04 DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.4	0.23	0.3	0.07
1.5	1.0	0.9	0.38	0.9	0.34
2.5	1.0	1.2	0.69	1.2	0.83
3.5	1.0	1.2	0.81	1.2	0.97
4.5	1.0	1.8	0.80	1.8	1.44
5.5	1.0	0.9	0.91	0.9	0.82
6.5	1.0	0.9	0.70	0.9	0.63
7.5	1.0	0.9	0.44	0.9	0.40
8.5	1.0	0.7	0.60	0.7	0.42
9.5	1.0	0.6	0.63	0.6	0.38
10.5	0.8	0.5	0.05	0.4	0.02
11.0	0.3	0.1	0.00	0.0	0.00

Total Flow: **6.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	7/6/04
Weather:	Calm, light rain, overcast, ~55° F	**Sampler(s):**	PJS
Location:	STRM004	**Sampling time:**	1100
Sample ID:	STRMS004		
KEX ID:	EAG-1001122		
		Temperature (^{o}C):	10
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	92
Appearance:	Slightly tannin stained	Conductivity (μmhos):	67
		pH (SU):	8.3
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 7/6/04 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.1	0.3	0.0	0.00	0.0	0.00
1.6	0.8	0.5	-0.14	0.4	-0.05
2.6	1.0	0.5	-0.15	0.5	-0.08
3.6	1.0	0.2	0.00	0.2	0.00
4.6	1.0	0.8	0.00	0.8	0.00
5.6	1.0	0.8	0.42	0.8	0.34
6.6	1.0	0.9	1.44	0.9	1.30
7.6	1.0	1.0	0.69	1.0	0.69
8.6	1.0	1.1	1.28	1.1	1.41
9.6	1.0	1.1	1.49	1.1	1.64
10.6	1.0	1.1	1.13	1.1	1.24
11.6	1.0	1.0	0.35	1.0	0.35
12.6	1.0	1.0	0.16	1.0	0.16
13.6	1.0	1.0	0.11	1.0	0.11
14.6	1.0	1.3	0.02	1.3	0.03
15.6	1.0	0.7	-0.07	0.7	-0.05
16.6	1.0	1.0	-0.05	1.0	-0.05
17.6	0.9	0.5	-0.06	0.5	-0.03
18.5	0.4	0.0	0.00	0.0	0.00

Total Flow: **7.0**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/29/04
Weather:	Sunny, hazy, ~70°s F	**Sampler(s):**	DWW
Location:	STRW001	**Sampling time:**	1345
Sample ID:	STRWS001		
KEX ID:	EAG-1001117		
		Temperature (^{o}C):	15
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	121
Appearance:	Very slight tannin staining,	Conductivity (μmhos):	98
	v. sl. suspended sediment	pH (SU):	7.5
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Masked duplicate (DUPS002, EAG-1001114) collected here.

Meter units: ft/sec

Flow Measurement 6/29/04 DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.7	0.30	0.5	0.16
1.5	1.0	1.1	0.49	1.1	0.54
2.5	1.0	1.4	0.58	1.4	0.81
3.5	1.0	1.5	0.52	1.5	0.78
4.5	1.0	1.4	0.56	1.4	0.78
5.5	1.0	1.1	0.40	1.1	0.44
6.5	1.0	0.8	0.15	0.8	0.12
7.5	0.8	0.4	-0.02	0.3	-0.01
8.0	0.5	0.3	-0.08	0.1	-0.01
8.5	0.3	0.1	0.00	0.0	0.00

Total Flow: **3.6**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/29/04
Weather:	Sunny, humid, ~70°s F	**Sampler(s):**	PJS/KMP
Location:	STRE001	**Sampling time:**	1505
Sample ID:	STRES001		
KEX ID:	EAG-1001111		
		Temperature (^{o}C):	16
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	83
Appearance:	Clear	Conductivity (μmhos):	68
		pH (SU):	8.1
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 6/29/04 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.4	0.00	0.2	0.00
2.0	1.0	1.4	0.48	1.4	0.67
3.0	1.0	1.4	0.67	1.4	0.94
4.0	1.0	1.4	1.31	1.4	1.83
5.0	1.0	1.4	0.82	1.4	1.15
6.0	1.0	1.6	1.10	1.6	1.76
7.0	1.0	1.5	1.56	1.5	2.34
8.0	1.0	0.8	1.12	0.8	0.90
9.0	1.0	0.6	1.42	0.6	0.85
10.0	1.0	0.6	1.30	0.6	0.78
11.0	1.0	0.6	1.21	0.6	0.73
12.0	1.0	0.4	0.28	0.4	0.11
13.0	1.0	0.6	0.97	0.6	0.58
14.0	1.0	0.5	0.69	0.5	0.35
15.0	1.0	0.4	0.64	0.4	0.26
16.0	1.0	0.3	0.49	0.3	0.15
17.0	1.0	0.2	0.00	0.2	0.00
18.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **13**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/30/04
Weather:	Breezy, clear sky, ~80°s F	**Sampler(s):**	PJS/KMP
Location:	STRE002	**Sampling time:**	1140
Sample ID:	STRES002		
KEX ID:	EAG-1001112		
		Temperature (^{o}C):	13
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	90
Appearance:	Clear	Conductivity (μmhos):	70
		pH (SU):	8.9
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 6/30/04 PJS/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	0.5	0.1	0.00	0.1	0.00
3.0	1.0	0.5	1.44	0.5	0.72
4.0	1.0	1.0	1.68	1.0	1.68
5.0	1.0	1.2	1.53	1.2	1.84
6.0	1.0	1.5	0.35	1.5	0.53
7.0	1.0	1.1	1.21	1.1	1.33
8.0	1.0	1.0	1.54	1.0	1.54
9.0	1.0	1.1	1.38	1.1	1.52
10.0	1.0	1.1	1.68	1.1	1.85
11.0	1.0	0.9	0.92	0.9	0.83
12.0	1.0	0.9	0.02	0.9	0.02
13.0	0.8	0.8	0.31	0.6	0.20
13.6	0.3	0.9	0.27	0.3	0.07

Total Flow: **12**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/30/04
Weather:	Partly cloudy, breezy, ~80°s F	**Sampler(s):**	PJS/DWW/PMK
Location:	YDRM002	**Sampling time:**	1420
Sample ID:	YDRMS002		
KEX ID:	EAG-1001120		
		Temperature (°C):	18
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	59
Appearance:	Tannin stained	Conductivity (µmhos):	52
		pH (SU):	7.9
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 6/30/04 DWW/PMK **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.5	1.35	0.4	0.51
1.5	1.0	1.1	1.47	1.1	1.62
2.5	1.0	1.2	1.70	1.2	2.04
3.5	1.0	1.8	1.61	1.8	2.90
4.5	1.0	2.0	1.53	2.0	3.06
5.5	1.0	2.0	1.50	2.0	3.00
6.5	1.0	2.0	1.42	2.0	2.84
7.5	1.0	1.4	1.39	1.4	1.95
8.5	1.0	0.9	0.74	0.9	0.67
9.5	0.8	0.5	0.28	0.4	0.11
10.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **19**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/30/04
Weather:	Sunny, warm, humid, ~80°s F	**Sampler(s):**	PMK/DWW
Location:	YDRM003	**Sampling time:**	1205
Sample ID:	YDRMS003		
KEX ID:	EAG-1001119		
		Temperature (^{o}C):	20
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	47
Appearance:	Tannin stained	Conductivity (μmhos):	42
		pH (SU):	6.7
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 6/30/04 PMK/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.3	0.20	0.2	0.05
1.5	1.0	0.7	0.25	0.7	0.18
2.5	1.0	1.1	0.29	1.1	0.32
3.5	1.0	1.3	0.57	1.3	0.74
4.5	1.0	1.3	0.68	1.3	0.88
5.5	1.0	1.7	0.91	1.7	1.55
6.5	1.0	2.0	1.06	2.0	2.12
7.5	1.0	2.5	1.02	2.5	2.55
8.5	1.0	2.6	0.98	2.6	2.55
9.5	1.0	2.6	1.01	2.6	2.63
10.5	1.0	2.3	0.73	2.3	1.68
11.5	0.8	2.0	0.61	1.5	0.92
12.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **16**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/29/04
Weather:	Sunny, ~60°s F	**Sampler(s):**	PJS/KMP
Location:	CDRA002	**Sampling time:**	1215
Sample ID:	CDRAS002		
KEX ID:	EAG-1001109		
		Temperature (^{o}C):	11
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	131
Appearance:	Clear	Conductivity (μmhos):	95
		pH (SU):	8.1
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 6/29/04 PJS/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.8	0.1	0.0	0.00	0.0	0.00
3.0	0.4	0.3	0.11	0.1	0.01
3.5	0.5	0.4	1.95	0.2	0.39
4.0	0.5	0.5	3.25	0.3	0.81
4.5	0.5	0.5	1.54	0.3	0.39
5.0	0.5	0.4	0.68	0.2	0.12
5.4	0.3	0.4	-0.08	0.1	-0.01
5.6	0.1	0.0	0.00	0.0	0.00

Total Flow: **1.7**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	6/29/04
Weather:	Sunny, rained last night, high 60°s F	**Sampler(s):**	PJS/KMP
Location:	CDRM004	**Sampling time:**	1330
Sample ID:	CDRMS004		
KEX ID:	EAG-1001108		
		Temperature (^{o}C):	16
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	122
Appearance:	Clear	Conductivity (μmhos):	99
		pH (SU):	8.1
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks: Masked duplicate (DUPS001, EAG-1001110) collected here.

DEQ gage = 2.12'.

Meter units: ft/sec

Flow Measurement 6/29/04 PJS/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	1.2	0.44	0.6	0.26
2.0	1.0	1.6	0.53	1.6	0.85
3.0	1.0	1.7	0.69	1.7	1.17
4.0	1.0	1.7	0.68	1.7	1.16
5.0	1.0	1.8	0.61	1.8	1.10
6.0	1.0	1.8	0.62	1.8	1.11
7.0	1.0	1.7	0.55	1.7	0.94
8.0	1.0	1.7	0.59	1.7	1.00
9.0	1.0	1.6	0.58	1.6	0.93
10.0	1.0	1.6	0.57	1.6	0.91
11.0	1.0	1.6	0.49	1.6	0.78
12.0	1.0	1.5	0.39	1.5	0.59
13.0	0.9	1.2	0.30	1.1	0.32
13.8	0.4	0.0	0.00	0.0	0.00

Total Flow: **11**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s):	8/3/04, 8/4/04, 8/5/04, 8/17/04, 8/18/04, 8/19/04, 8/25/04 and 9/9/04
Activities:	Collected surface water samples from the Salmon Trout (STRM001, STRM002, STRM003, STRM004, STRM005, STRW001, STRE001 and STRE002), Yellow Dog (YDRM002 and YDRM003), and Cedar River (CDRA002 and CDRM004) monitoring locations.
	Completed 12 flow measurements on 8/3-8/5/04 and 8/25/04.
	Collected groundwater samples at QAL001A/D, QAL002A, QAL003A/B, QAL004A/D, QAL005A/D, QAL006A/B, QAL015, QAL016, QAL018 and QAL020. WLD001, WLD006, WLD016,and WLD021.
	Collected duplicate, field blank and equipment blank samples.
	Collected water elevations on 8/26/04.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	12
Water Sampling Log	31
Chain of Custody Numbers	100309, 100627, 100631, 100805-100807, 101576, 101966, 101968

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Dan Wiitala (DWW), Pete Kero (PMK), Richard Eagle (RRE), Peter Sabee (PJS), Kari Paulson (KMP) and John Meier (JGM)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (µmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STRMS001	EAG-1001123	8/4 & 8/5/04	16	99	7.5	2
STRM002	STRMS002	EAG-1001124	8/3/04	16	66	7.2	8
STRM003	STRMS003	EAG-1001125	8/4/04	13	72	8.1	7
STRM004	STRMS004	EAG-1001126	8/5/04	13	100	7.9	8
STRM005	STRMS005	EAG-1001127	8/25/04	14	96	7.0	7
STRW001	STRWS001	EAG-1001128	8/5/04	13	106	7.7	8
STRE001	STRES001	EAG-1001129	8/5/04	12	135	7.9	7
STRE002	STRES002	EAG-1001130	8/5/04	10	101	8.3	8
YDRM002	YDRMS002	EAG-1001131	8/3/04	17	65	7.2	7
YDRM003	YDRMS003	EAG-1001132	8/4/04	17	61	7.4	7
CDRA002	CDRAS002	EAG-1001133	8/3/04	9.5	99	8.0	9
CDRM004	CDRMS004	EAG-1001134	8/3/04	14	116	8.0	9

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	8/4/04	0.1
STRM002	8/3/04	1.8
STRM003	8/4/04	4.0
STRM004	8/5/04	3.7
STRM005	8/25/04	36
STRW001	8/5/04	3.3
STRE001	8/5/04	10
STRE002	8/5/04	12
YDRM002	8/4/04	12
YDRM003	8/4/04	9.8
CDRA002	8/3/04	1.7
CDRM004	8/3/04	9.5

North Jackson Company
Groundwater Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)	Ferrous Iron (mg/L)
QAL001A	QALM001A	EAG-1001147	8/19/04	7.2	66	9.0	7	<0.1
QAL001D	QALM001D	EAG-1001148	8/19 & 9/9/04	8.0	174	8.8	0.008	0.2
QAL002A	QALM002A	EAG-1001149	8/19/04	7.5	59	8.8	7	<0.1
QAL003A	QALM003A	EAG-1001166	8/18/04	8.4	152	8.3	NM	NM
QAL003B	QALM003B	EAG-1001167	8/18/04	8.4	158	8.1	<0.02	<0.1
QAL004A	QALM004A	EAG-1001168	8/17/04	7.2	94	9.1	7	<0.1
QAL004D	QALM004D	EAG-1001169	8/17/04	7.6	156	7.9	<0.001	0.15
QAL005A	QALM005A	EAG-1001170	8/17/04	7.1	18	5.6	2	0.3
QAL005D	QALM005D	EAG-1001171	8/17/04	7.8	163	7.8	<0.001	0.7
QAL006A	QALM006A	EAG-1001172	8/17/04	7.8	16	5.4	7	<0.1
QAL006B	QALM006B	EAG-1001173	8/17/04	8.2	167	6.9	<0.001	15
QAL015	QALP015	EAG-1001174	9/9/04	7.9	120	7.6	4.5	<0.1
QAL016	QALP016	EAG-1001175	9/9/04	7.0	127	8.7	7	<0.1
QAL018	QALP018	EAG-1001176	8/19/04	7.4	136	7.5	3.5	<0.1
QAL020	QALP020	EAG-1001177	8/18/04	9.6	34	6.2	3	<0.1
WLD001	WLDP001	EAG-1001143	8/19/04	11	158	7.2	0.4	1
WLD006	WLDP006	EAG-1001144	8/18/04	12	39	6.1	<0.005	9
WLD016	WLDP016	EAG-1001145	8/19/04	9.1	180	8.3	0.1	0.1
WLD021	WLDP021	EAG-1001146	8/19/04	11	34	5.9	<0.001	2

NM Not measured
Note: QAL002D not sampled due to repeated dedicated pump failures.

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
WLD001	8/26/04	1430.41	1.54	8	1428.87
WLD002	8/26/04	1433.12	2.54	8	1430.58
WLD003	8/26/04	1435.66	2.05	8	1433.61
WLD004	8/26/04	1448.91	2.77	8	1446.14
WLD005	8/26/04	1453.50	2.52	8	1450.98
WLD006	8/26/04	1459.29	3.97	8	1455.32
WLD007	8/26/04	1453.70	3.20	8	1450.51
WLD008	8/26/04	1456.60	3.28	8	1453.32
WLD009	8/26/04	1460.17	3.16	8	1457.01
WLD010	8/26/04	1450.90	3.65	8	1447.25
WLD011	8/26/04	1449.51	3.60	8	1445.91
WLD012	8/26/04	1448.60	2.83	8	1445.77
WLD013	8/26/04	1447.81	3.79	8	1444.02
WLD014	8/26/04	1443.47	2.27	8	1441.20
WLD015	8/26/04	1431.28	2.38	8	1428.90
WLD016	8/26/04	1432.34	3.98	8	1428.36
WLD017	8/26/04	1427.70	4.72	8	1422.98
WLD018	8/26/04	1427.34	4.40	8	1422.94
WLD019	8/26/04	1424.93	NM	8	NM
WLD020	8/26/04	1424.13	4.34	8	1419.79
WLD021	8/26/04	1420.58	5.22	8	1415.36
WLD022	8/26/04	1425.66	3.11	8	1422.55
WLD023	8/26/04	1416.42	2.83	8	1413.59

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
QAL001A	8/26/04	1462.92	50.13	68	1412.79
QAL001D	8/26/04	1462.81	54.91	88	1407.90
QAL002A	8/26/04	1479.54	44.31	63	1435.23
QAL002D	8/26/04	1479.21	87.26	143	1391.95
QAL003A	8/26/04	1436.95	10.37	33	1426.58
QAL003B	8/26/04	1436.48	23.36	50	1413.12
QAL004A	8/26/04	1451.09	25.45	58	1425.64
QAL004D	8/26/04	1450.94	16.80	148	1434.14
QAL005A	8/26/04	1459.74	5.37	28	1454.37
QAL005D	8/26/04	1459.59	6.40	130	1453.19
QAL006A	8/26/04	1423.92	8.79	28	1415.13
QAL006B	8/26/04	1424.33	23.39	83	1400.94
QAL015	8/26/04	1296.09	3.53	7	1292.56
QAL016	8/26/04	1275.73	0.93	7	1274.80
QAL017	8/26/04	1255.39	4.39	7	1251.00
QAL018	8/26/04	1253.47	3.25	11	1250.22
QAL019	8/26/04	1288.68	3.13	7	1285.55
QAL020	8/26/04	1338.7	3.09	7	1335.61
QAL021	8/26/04	1392.19	2.89	7	1389.30
QAL022	8/26/04	1300.95	2.59	7	1298.36
QAL023	8/26/04	1421.39	0.82	35	1420.57
YDR002	8/26/04	1415.12	2.91	NA	1412.21
STRM002	8/26/04	1400.09	0.82	NA	1400.91

NM Not measured
NA Not applicable

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/4 & 8/5/04
Weather:	Sunny, ~70°s F	**Sampler(s):**	PMK
Location:	STRM001	**Sampling time:**	0930
Sample ID:	STRMS001		
KEX ID:	EAG-1001123		
		Temperature (^{o}C):	16
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	99
Appearance:	Clear, tannin stained	Conductivity (μmhos):	120
		pH (SU):	7.5
		D.O. (ppm):	2

Sampling method: Grab sample

Date	Tag	#Collected	Bottle	Preservative	Parameter
8/4	Green	2	1000 ml plastic	Ice	Various
8/5	Red stripe	1	500 ml plastic	HNO3	Filtered metals
8/4	Red solid	1	500 ml plastic	HNO3	Total metals
8/4	Pink	3	40 ml amber glass	H2SO4	TOC
8/4	Dark blue	1	500 ml plastic	H2SO4	Nutrients
8/4	None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Filtering error, recollected one metals bottle 8/5 (see dates).

Meter units: ft/sec

Flow Measurement 8/4/04 PMK **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	1.3	0.01	1.0	0.01
1.5	1.0	1.5	0.03	1.5	0.05
2.5	1.0	1.5	0.02	1.5	0.03
3.5	1.0	1.8	0.01	1.8	0.02
4.5	1.0	1.8	-0.01	1.8	-0.02
5.5	1.0	1.9	0.03	1.9	0.06
6.5	0.8	0.7	0.00	0.5	0.00
7.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **0.1**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/3/04
Weather:	Clear, calm, ~75°s F	**Sampler(s):**	PJS
Location:	STRM002	**Sampling time:**	1530
Sample ID:	STRMS002		
KEX ID:	EAG-1001124		
		Temperature (^{o}C):	16
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	66
Appearance:	Tannin stained	Conductivity (μmhos):	54
		pH (SU):	7.2
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Masked duplicate (DUPS001, EAG-1001135) collected here. Measured field parameters w/ Whitewater.

Temp 15.5, cond 64.3, pH 7.1. WW sampled ahead of us, flow same time. WW flow period 20 sec.

Meter units: ft/sec

Flow Measurement 8/3/04 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
4.2	0.2	0.2	0.00	0.0	0.00
4.5	0.4	0.2	0.00	0.1	0.00
5.0	0.5	0.3	0.25	0.1	0.03
5.5	0.5	0.4	0.55	0.2	0.10
6.0	0.5	0.5	1.11	0.3	0.28
6.5	0.5	0.6	1.44	0.3	0.43
7.0	0.5	0.6	1.36	0.3	0.41
7.5	0.5	0.5	0.70	0.3	0.18
8.0	0.5	0.4	1.06	0.2	0.21
8.5	0.5	0.4	0.88	0.2	0.18
9.0	0.5	0.1	0.00	0.0	0.00
9.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **1.8**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/4/04
Weather:	Sunny, ~70°s F	**Sampler(s):**	PMK
Location:	STRM003	**Sampling time:**	1400
Sample ID:	STRMS003		
KEX ID:	EAG-1001125		
		Temperature (^{o}C):	13
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	72
Appearance:	Clear	Conductivity (μmhos):	93
		pH (SU):	8.1
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Masked duplicate (DUPS002, EAG-1001136) collected here.

Meter units: ft/sec

Flow Measurement 8/4/04 PMK **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.5	0.28	0.4	0.11
1.5	1.0	1.2	0.58	1.2	0.70
2.5	1.0	1.3	0.64	1.3	0.83
3.5	1.0	1.2	0.66	1.2	0.79
4.5	1.0	1.0	0.58	1.0	0.58
5.5	1.0	0.9	0.45	0.9	0.41
6.5	1.0	0.7	0.51	0.7	0.36
7.5	1.0	0.6	0.31	0.6	0.19
8.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **4.0**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/5/04
Weather:	Sunny, dry, ~70° F	**Sampler(s):**	DWW/PJS
Location:	STRM004	**Sampling time:**	1040
Sample ID:	STRMS004		
KEX ID:	EAG-1001126		
		Temperature (^{o}C):	13
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	100
Appearance:	Clear	Conductivity (μmhos):	77
		pH (SU):	7.9
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 8/5/04 DWW/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.5	-0.07	0.4	-0.03
1.5	1.0	0.7	-0.08	0.7	-0.06
2.5	1.0	1.0	0.01	1.0	0.01
3.5	1.0	1.1	0.25	1.1	0.28
4.5	1.0	1.3	0.56	1.3	0.73
5.5	1.0	1.3	0.54	1.3	0.70
6.5	1.0	1.2	0.68	1.2	0.82
7.5	1.0	1.1	0.65	1.1	0.72
8.5	1.0	1.3	0.37	1.3	0.48
9.5	1.0	1.2	0.10	1.2	0.12
10.5	1.0	1.3	0.00	1.3	0.00
11.5	1.0	1.0	-0.06	1.0	-0.06
12.5	0.8	0.5	-0.06	0.4	-0.02
13.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **3.7**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/25/04
Weather:	Overcast, ~60°s F	**Sampler(s):**	PMK/RRE/JGM
Location:	STRM005	**Sampling time:**	0830
Sample ID:	STRMS005		
KEX ID:	EAG-1001127		
		Temperature (^{o}C):	14
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	96
Appearance:	Clear	Conductivity (μmhos):	121
		pH (SU):	7.0
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 8/25/04 RRE/PMK **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	2.0	0.6	0.58	1.2	0.70
4.0	2.0	0.6	0.57	1.2	0.68
6.0	2.0	0.9	0.49	1.8	0.88
8.0	2.0	0.9	0.58	1.8	1.04
10.0	2.0	1.1	0.65	2.2	1.43
12.0	2.0	1.1	0.73	2.2	1.61
14.0	2.0	1.2	0.79	2.4	1.90
16.0	2.0	1.4	0.81	2.8	2.27
18.0	2.0	1.4	0.72	2.8	2.02
20.0	2.0	1.6	0.90	3.2	2.88
22.0	2.0	1.6	0.84	3.2	2.69
24.0	2.0	1.6	0.84	3.2	2.69
26.0	2.0	1.7	0.81	3.4	2.75
28.0	2.0	1.7	0.88	3.4	2.99
30.0	2.0	1.6	0.87	3.2	2.78
32.0	2.0	1.8	0.88	3.6	3.17
34.0	2.0	1.8	0.69	3.6	2.48
36.0	1.5	1.5	0.31	2.3	0.70
37.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **36**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/5/04
Weather:	Sunny, ~60°s F	**Sampler(s):**	PJS/DWW/PMK
Location:	STRW001	**Sampling time:**	1230
Sample ID:	STRWS001		
KEX ID:	EAG-1001128		
		Temperature (^{o}C):	13
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	106
Appearance:	Clear	Conductivity (μmhos):	136
		pH (SU):	7.7
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 8/5/04 DWW/PMK **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.7	0.47	0.5	0.25
1.5	1.0	1.1	0.53	1.1	0.58
2.5	1.0	1.2	0.57	1.2	0.68
3.5	1.0	1.1	0.40	1.1	0.44
4.5	1.0	1.4	0.51	1.4	0.71
5.5	1.0	1.1	0.48	1.1	0.53
6.5	1.0	0.7	0.16	0.7	0.11
7.5	0.9	0.2	-0.06	0.2	-0.01
8.3	0.5	<0.1	0.00	0.0	0.00
8.5	0.1	0.0	0.00	0.0	0.00

Total Flow: **3.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/5/04
Weather:	Sunny, ~60°s F	**Sampler(s):**	PJS/DWW/PMK
Location:	STRE001	**Sampling time:**	1430
Sample ID:	STRES001		
KEX ID:	EAG-1001129		
		Temperature (^{o}C):	12
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	135
Appearance:	Clear	Conductivity (μmhos):	102
		pH (SU):	7.9
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 8/5/04 DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.3	0.24	0.2	0.05
1.5	1.0	0.6	0.67	0.6	0.40
2.5	1.0	0.5	0.67	0.5	0.34
3.5	1.0	0.5	0.90	0.5	0.45
4.5	1.0	0.6	1.01	0.6	0.61
5.5	1.0	0.6	1.16	0.6	0.70
6.5	1.0	0.7	1.24	0.7	0.87
7.5	1.0	0.9	1.06	0.9	0.95
8.5	1.0	1.0	1.20	1.0	1.20
9.5	1.0	1.2	0.95	1.2	1.14
10.5	1.0	1.5	0.71	1.5	1.07
11.5	1.0	1.5	0.61	1.5	0.92
12.5	1.0	1.4	0.52	1.4	0.73
13.5	1.0	1.4	0.53	1.4	0.74
14.5	0.8	0.8	0.30	0.6	0.18
15.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **10**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/5/04
Weather:	Sunny, ~60°s F	**Sampler(s):**	PJS/DWW/PMK
Location:	STRE002	**Sampling time:**	1020
Sample ID:	STRES002		
KEX ID:	EAG-1001130		
		Temperature (^{o}C):	10
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	101
Appearance:	Clear	Conductivity (μmhos):	140
		pH (SU):	8.3
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 8/5/04 DWW/PMK **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.1	0.0	0.00	0.0	0.00
0.3	0.5	0.2	0.66	0.1	0.07
1.0	0.9	0.3	0.90	0.3	0.24
2.0	1.0	0.8	1.34	0.8	1.07
3.0	1.0	1.1	1.36	1.1	1.50
4.0	1.0	1.4	1.28	1.4	1.79
5.0	1.0	0.8	1.15	0.8	0.92
6.0	1.0	0.7	1.58	0.7	1.11
7.0	1.0	1.0	1.39	1.0	1.39
8.0	1.0	1.2	1.62	1.2	1.94
9.0	1.0	1.0	1.01	1.0	1.01
10.0	1.0	0.9	0.39	0.9	0.35
11.0	0.8	0.8	0.45	0.6	0.27
11.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **12**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/3/04
Weather:	Clear, calm, ~70° F	**Sampler(s):**	PJS
Location:	YDRM002	**Sampling time:**	1030
Sample ID:	YDRMS002		
KEX ID:	EAG-1001131		
		Temperature (^{o}C):	17
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	65
Appearance:	Tannin	Conductivity (μmhos):	56
		pH (SU):	7.2
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: NJCO sample collected side-by-side with Whitewater carboy. Masked duplicate

(DUPS003, EAG-1001139) collected here from WW carboy. WW DO 9 ppm (membrane instrument).

Present: C. Pryor & John, Eagle Alliance. D. Premo & Carrie, Whitewater.

Meter units: ft/sec

Flow Measurement 8/4/04 PMK **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.8	1.34	0.6	0.80
1.5	1.0	1.3	1.27	1.3	1.65
2.5	1.0	1.6	1.31	1.6	2.10
3.5	1.0	1.7	1.32	1.7	2.24
4.5	1.0	1.9	1.23	1.9	2.34
5.5	1.0	1.7	1.13	1.7	1.92
6.5	1.0	1.0	1.16	1.0	1.16
7.5	1.0	0.4	0.29	0.4	0.12
8.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **12**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/4/04
Weather:	Breezy, partly cloudy, ~70°s F	**Sampler(s):**	PJS/KMP
Location:	YDRM003	**Sampling time:**	1230
Sample ID:	YDRMS003		
KEX ID:	EAG-1001132		
		Temperature (°C):	17
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	61
Appearance:	Tannin stained	Conductivity (µmhos):	51
		pH (SU):	7.4
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 8/4/04 PJS/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
17.0	0.5	0.0	0.00	0.0	0.00
16.0	1.0	0.9	0.01	0.9	0.01
15.0	1.0	1.4	-0.01	1.4	-0.01
14.0	1.0	1.6	0.05	1.6	0.08
13.0	1.0	2.0	0.64	2.0	1.28
12.0	1.0	2.3	0.75	2.3	1.73
11.0	1.0	2.3	0.81	2.3	1.86
10.0	1.0	2.2	0.51	2.2	1.12
9.0	1.0	1.9	0.64	1.9	1.22
8.0	1.0	1.9	0.65	1.9	1.24
7.0	1.0	1.8	0.42	1.8	0.76
6.0	1.0	1.7	0.30	1.7	0.51
5.0	1.0	1.3	0.01	1.3	0.01
4.0	1.0	0.9	0.03	0.9	0.03
3.0	0.9	0.5	-0.05	0.5	-0.02
2.2	0.4	0.0	0.00	0.0	0.00

Total Flow: **9.8**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/3/04
Weather:	Light breeze, partly cloudy, ~70°s F	**Sampler(s):**	PJS
Location:	CDRA002	**Sampling time:**	1300
Sample ID:	CDRAS002		
KEX ID:	EAG-1001133		
		Temperature (^{o}C):	9.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	99
Appearance:	Clear	Conductivity (μmhos):	69
		pH (SU):	8.0
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 8/3/04 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.3	0.3	0.02	0.1	0.00
1.5	0.5	0.4	1.37	0.2	0.27
2.0	0.5	0.4	3.23	0.2	0.65
2.5	0.5	0.5	2.45	0.2	0.55
3.0	0.5	0.4	1.39	0.2	0.28
3.5	0.3	0.3	-0.08	0.1	-0.01

Total Flow: **1.7**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/3/04
Weather:	Scattered clouds, light breeze, ~70°s F	**Sampler(s):**	PJS
Location:	CDRM004	**Sampling time:**	1430
Sample ID:	CDRMS004		
KEX ID:	EAG-1001134		
		Temperature (^{o}C):	14
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	116
Appearance:	Clear	Conductivity (μmhos):	146
		pH (SU):	8.0
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Left bank undercut by 0.5 ft.

Meter units: ft/sec

Flow Measurement 8/3/04 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
14.0	0.5	0.3	-0.06	0.2	-0.01
13.0	1.0	1.2	0.40	1.2	0.48
12.0	1.0	1.5	0.50	1.5	0.75
11.0	1.0	1.8	0.56	1.8	1.01
10.0	1.0	1.8	0.38	1.8	0.68
9.0	1.0	2.2	0.53	2.2	1.17
8.0	1.0	2.2	0.55	2.2	1.20
7.0	1.0	2.0	0.54	2.0	1.08
6.0	1.0	1.8	0.56	1.8	0.98
5.0	1.0	1.5	0.50	1.5	0.75
4.0	1.0	1.3	0.46	1.3	0.60
3.0	1.0	1.2	0.38	1.2	0.46
2.0	1.0	1.6	0.01	1.6	0.02
1.0	1.0	1.3	0.25	1.3	0.33

Total Flow: **9.5**

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/19/04
Weather:	Sunny, breezy, ~65° F	**Sampler(s):**	PJS
Location:	QAL001A	**Sampling time:**	1440
Sample ID:	QALM001A		
KEX ID:	EAG-1001147		

		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	66
Appearance:	Clear	Conductivity (μmhos):	43
		pH (SU):	9.0
		D.O. (ppm):	7
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	68	ft	Well diameter (in):	2
Approx. Depth to water:	50	ft		
Water column in well:	18	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~10
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1gpm. Well condition excellent.

Pump excellent condition after repair of connection.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1428	7.2	66	8.9	3
1431	7.2	66	8.9	6
1435	7.2	66	9.0	10

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/19 & 9/9/04
Weather:	Partly cloudy, breezy, ~60°s F	**Sampler(s):**	PJS
Location:	QAL001D	**Sampling time:**	1520
Sample ID:	QALM001D		
KEX ID:	EAG-1001148		

		Temperature (^{o}C):	8.0
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	174
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	8.8
		D.O. (ppm):	0.008
		Ferrous Iron (mg/L):	0.20

Description of measuring point: Mark on PVC riser

Total depth:	88	ft		Well diameter (in):	2.5
Approx. Depth to water:	53	ft			
Water column in well:	35	ft		Gallons purged	
Volume/foot:	0.26	gal/ft		prior to sampling:	~43
Well volume:	9	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Date	Tag	# Collected	Bottle	Preservative	Parameter
9/9	Green	2	1000 ml plastic	None	Various
9/9	Green	1	500 ml plastic	None	Various
8/19	Red stripe	1	500 ml plastic	HNO3	Filtered metals
9/9	None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: DO & ferrous iron on 9/9; others 8/19. See dates for bottles. Pump rate ~0.5 gpm. Well condition excellent; pump excellent after repair of connection. Well goes dry so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/19/04
Weather:	Sunny, breezy, ~65° F	**Sampler(s):**	PJS/KMP
Location:	QAL002A	**Sampling time:**	1100
Sample ID:	QALM002A		
KEX ID:	EAG-1001149		

		Temperature (^{o}C):	7.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	59
Appearance:	Clear	Conductivity (µmhos):	39
		pH (SU):	8.8
		D.O. (ppm):	7.0
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	63	ft	Well diameter (in):	2
Approx. Depth to water:	44	ft		
Water column in well:	19	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~20
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.6 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1052	7.6	59	8.9	12
1054	7.5	59	8.9	15
1056	7.5	59	8.8	18
1100	7.5	59	8.8	20

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/18/04
Weather:	Windy, ~60°s F	**Sampler(s):**	PJS/KMP
Location:	QAL003A	**Sampling time:**	1230
Sample ID:	QALM003A		
KEX ID:	EAG-1001166		

		Temperature (^{o}C):	8.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	152
Appearance:	Slight suspended sediment	Conductivity (µmhos):	106
		pH (SU):	8.3
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	33	ft	Well diameter (in):	2
Approx. Depth to water:	10	ft		
Water column in well:	23	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~10
Well volume:	4	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Initial pump rate ~0.25 gpm. Well goes dry so no stabilization record. Well condition excellent.

Replaced 1 stage pump. Too much sediment for visual reading of DO and ferrous iron.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/18/04
Weather:	Windy, ~60°s F	**Sampler(s):**	PJS/KMP
Location:	QAL003B	**Sampling time:**	1215
Sample ID:	QALM003B		
KEX ID:	EAG-1001167		

		Temperature (^{o}C):	8.4
Odor:	Slight hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	158
Appearance:	Clear	Conductivity (µmhos):	108
		pH (SU):	8.1
		D.O. (ppm):	<0.02
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	50	ft	Well diameter (in):	2.5
Approx. Depth to water:	23	ft		
Water column in well:	27	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~34
Well volume:	7	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.75 gpm, very stable. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1145	8.6	159	8.1	20
1155	8.6	158	8.1	27
1205	8.4	158	8.1	34

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/17/2004
Weather:	Mostly cloudy, light wind, ~70°s F	**Sampler(s):**	PJS
Location:	QAL004A	**Sampling time:**	1335
Sample ID:	QALM004A		
KEX ID:	EAG-1001168		

		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	94
Appearance:	Clear	Conductivity (µmhos):	62
		pH (SU):	9.1
		D.O. (ppm):	7
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	58	ft	Well diameter (in):	2
Approx. Depth to water:	25	ft		
Water column in well:	33	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~45
Well volume:	5	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Masked duplicate (DUPM001, EAG-1001178) collected here.

Pump rate ~1.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1320	7.2	94	9.1	35
1325	7.2	94	9.1	40
1330	7.2	94	9.1	45

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/17/04
Weather:	Mostly cloudy, light wind, ~70°s F	**Sampler(s):**	PJS
Location:	QAL004D	**Sampling time:**	1340
Sample ID:	QALM004D		
KEX ID:	EAG-1001169		

		Temperature (^{o}C):	7.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	156
Appearance:	Clear	Conductivity (μmhos):	104
		pH (SU):	7.9
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.15

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	17	ft		
Water column in well:	131	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~90
Well volume:	33	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1320	7.6	155	7.8	50
1325	7.6	156	7.9	60
1330	7.6	156	7.9	70
1340	7.6	156	7.9	90

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/17/04
Weather:	Overcast, light wind, ~70°s F	**Sampler(s):**	PJS
Location:	QAL005A	**Sampling time:**	1145
Sample ID:	QALM005A		
KEX ID:	EAG-1001170		

		Temperature (^{o}C):	7.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	18
Appearance:	Clear	Conductivity (µmhos):	NM
		pH (SU):	5.6
		D.O. (ppm):	2
		Ferrous Iron (mg/L):	0.3

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	5	ft		
Water column in well:	23	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~120
Well volume:	4	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~3 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1110	7.1	18	5.6	15
1115	7.1	18	5.6	30
1145	7.1	18	5.6	120

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/17/04
Weather:	Overcast, light wind, ~70°s F	**Sampler(s):**	PJS
Location:	QAL005D	**Sampling time:**	1200
Sample ID:	QALM005D		
KEX ID:	EAG-1001171		

		Temperature (^{o}C):	7.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	163
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	7.8
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.7

Description of measuring point: Mark on PVC riser

Total depth:	130	ft	Well diameter (in):	2.5
Approx. Depth to water:	6	ft		
Water column in well:	124	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~140
Well volume:	32	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Masked duplicate (DUPM002, EAG-1001179) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1100	7.9	166	7.8	40
1120	7.9	165	7.8	80
1140	7.8	163	7.8	100
1200	7.8	163	7.8	140

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/17/04
Weather:	Partly cloudy, breezy, ~70°s F	**Sampler(s):**	PJS
Location:	QAL006A	**Sampling time:**	1435
Sample ID:	QALM006A		
KEX ID:	EAG-1001172		

		Temperature (^{o}C):	7.8
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	16
Appearance:	Clear	Conductivity (µmhos):	11
		pH (SU):	5.4
		D.O. (ppm):	7.0
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	9	ft		
Water column in well:	19	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~65
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1420	7.8	16	5.4	35
1425	7.8	16	5.4	45
1430	7.8	16	5.4	55
1435	7.8	16	5.4	65

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/17/04
Weather:	Partly cloudy, breezy, ~70°s F	**Sampler(s):**	PJS
Location:	QAL006B	**Sampling time:**	1420
Sample ID:	QALM006B		
KEX ID:	EAG-1001173		

		Temperature (^{o}C):	8.2
Odor:	Iron	Spec. Cond. (μmhos/cm @ 25°C):	167
Appearance:	Clear yellow	Conductivity (μmhos):	114
		pH (SU):	6.9
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	15

Description of measuring point: Mark on PVC riser

Total depth:	83	ft	Well diameter (in):	2.5
Approx. Depth to water:	23	ft		
Water column in well:	60	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~50
Well volume:	15	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1410	8.4	163	6.9	30
1415	8.3	165	6.9	40
1420	8.2	167	6.9	50

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/9/04
Weather:	Sunny, dry, ~65° F	**Sampler(s):**	DWW/PJS
Location:	QAL015	**Sampling time:**	1320
Sample ID:	QALP015		
KEX ID:	EAG-1001174		

		Temperature (^{o}C):	7.9
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	120
Appearance:	Clear	Conductivity (μmhos):	81
		pH (SU):	7.6
		D.O. (ppm):	4.5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	3	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~6
Well volume:	0.2	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1308	8.1	120	7.7	3
1312	8.0	120	7.7	4
1316	7.9	120	7.6	5
1320	7.9	120	7.6	6

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/9/04
Weather:	Sunny, dry, ~65° F	**Sampler(s):**	DWW/PJS
Location:	QAL016	**Sampling time:**	1415
Sample ID:	QALP016		
KEX ID:	EAG-1001175		

		Temperature (^{o}C):	7.0
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	127
Appearance:	Clear	Conductivity (μmhos):	83
		pH (SU):	8.7
		D.O. (ppm):	7.0
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	1	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~6
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Masked duplicate (DUPP003, EAG-1001180) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1403	7.2	127	8.7	3
1407	7.1	127	8.7	4
1411	7.0	127	8.7	5
1415	7.0	127	8.7	6

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/19/04
Weather:	Sunny, ~65° F	**Sampler(s):**	DWW/JGM
Location:	QAL018	**Sampling time:**	1530
Sample ID:	QALP018		
KEX ID:	EAG-1001176		

		Temperature (^{o}C):	7.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	136
Appearance:	Clear, trace very fine sediment	Conductivity (μmhos):	90
		pH (SU):	7.5
		D.O. (ppm):	3.5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	11	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	7	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~14
Well volume:	0	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1522	8.1	140	7.5	12
1526	7.5	134	7.5	13
1530	7.4	136	7.5	14

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/18/04
Weather:	Sunny, breezy, dry, ~75° F	**Sampler(s):**	DWW
Location:	QAL020	**Sampling time:**	1405
Sample ID:	QALP020		
KEX ID:	EAG-1001177		

		Temperature (^{o}C):	9.6
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	34
Appearance:	Clear	Conductivity (µmhos):	24
		pH (SU):	6.2
		D.O. (ppm):	3
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~2.5
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Pump rate ~0.1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1348	10.5	38	6.3	0.8
1356	9.8	37	6.3	1.6
1404	9.6	34	6.2	2.4
1405	9.6	34	6.2	2.5

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/19/04
Weather:	Sunny, breezy, ~60° F	**Sampler(s):**	DWW/JGM
Location:	WLD001	**Sampling time:**	1025
Sample ID:	WLDP001		
KEX ID:	EAG-1001143		

		Temperature (^{o}C):	11
Odor:	Very slight hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	158
Appearance:	Clear	Conductivity (μmhos):	116
		pH (SU):	7.2
		D.O. (ppm):	0.4
		Ferrous Iron (mg/L):	1

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~3
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1017	11	158	7.1	1
1021	11	158	7.1	2
1025	11	158	7.2	3

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/18/04
Weather:	Sunny, breezy, ~70° F	**Sampler(s):**	DWW
Location:	WLD006	**Sampling time:**	1200
Sample ID:	WLDP006		
KEX ID:	EAG-1001144		

		Temperature (^{o}C):	12
Odor:	Hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	39
Appearance:	Clear to very slight yellow	Conductivity (μmhos):	30
		pH (SU):	6.1
		D.O. (ppm):	<0.005
		Ferrous Iron (mg/L):	9

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~3.2
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1155	13	42	6.3	0.8
1156	13	40	6.1	1.6
1157	12	39	6.1	2.4
1158	12	39	6.1	3.2

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/19/04
Weather:	Sunny, breezy, ~68° F	**Sampler(s):**	DWW/JGM
Location:	WLD016	**Sampling time:**	1315
Sample ID:	WLDP016		
KEX ID:	EAG-1001145		

		Temperature (^{o}C):	9.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	180
Appearance:	Clear	Conductivity (μmhos):	125
		pH (SU):	8.3
		D.O. (ppm):	0.1
		Ferrous Iron (mg/L):	0.1

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~3
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.75 gpm. Well condition excellent.

Stabilization Record:

~Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1307	9.9	182	7.9	1
1309	9.3	179	8.2	2
1310	9.1	180	8.3	3

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/19/04
Weather:	Sunny, breezy, ~65° F	**Sampler(s):**	DWW/JGM
Location:	WLD021	**Sampling time:**	1145
Sample ID:	WLDP021		
KEX ID:	EAG-1001146		

		Temperature (^{o}C):	11
Odor:	Moderate hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	34
Appearance:	Clear	Conductivity (μmhos):	25
		pH (SU):	5.9
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	2

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	5	ft		
Water column in well:	3	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~3
Well volume:	0.2	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	None	Various
Green	1	500 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Masked duplicate (DUPP004, EAG-1001181) collected here.

Stabilization Record:

~Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1136	11.2	34	6.1	1
1138	10.9	33	5.9	2
1140	11.0	34	5.9	3

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 8/2/04, 8/3/04 and 8/4/04

Activities: Collected water quality samples during a pump test (04EA054A, 04EA054B, 04EA054D and 04EA054E).

Field Report Attachments

Field Analytical Data Summary	yes
Discharge Measurement	0
Water Sampling Log	4
Chain of Custody Numbers	101966, 101967

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, nutrients, general parameters
Illinois State Geological Survey - Tritium

Sampler Name(s): Dan Wiitala (DWW), Pete Kero (PMK)

North Jackson Company
Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (µmhos/cm @ 25°C)	pH (SU)	DO (ppm)	Ferrous Iron (mg/L)
04EA054	04EA054A	EAG-1001041	8/2/04	15	173	9.4	NM	NM
04EA054	04EA054B	EAG-1001139	8/2/04	16	233	9.7	NM	NM
04EA054	04EA054D	EAG-1001140	8/3/04	16	183	9.7	NM	NM
04EA054	04EA054E	EAG-1001141	8/4/04	11	321	10.2	NM	NM

NM Not measured

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/2/04
Weather:	Sunny, ~60°s F	**Sampler(s):**	DWW
Location:	04EA054	**Sampling time:**	1710
Sample ID:	04EA054A		
KEX ID:	EAG-1001041		

		Temperature (^{o}C)	15
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C)	173
Appearance:	Clear	Conductivity (μmhos)	138
		pH (SU)	9.4
		D.O. (ppm)	NM
		Ferrous Iron (mg/L)	NM

Description of measuring point: Top of well casing

Total depth	80	ft	Well diameter (in):	3.25 (0-42' bgs)
Approx. Depth to water	0	ft		3.0 (42-80' bgs)
Water column in well	80	ft	Gallons purged	
Volume/foot (3.25")	0.43	gal/ft	prior to sampling:	~62
Volume/foot (3.0")	0.37	gal/ft		
Well volume	32	gal		

Evacuation method: Submersible pump

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
None	1	250 ml Teflon	None	Filtered Hg
None	1	250 ml amber glass	None	Tritium

Photographs: None

Remarks: Drawdown during pump test/sampling period ~57 feet.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/2/04
Weather:	Clear, ~50°s F	**Sampler(s):**	DWW
Location:	04EA054	**Sampling time:**	2050
Sample ID:	04EA054B		
KEX ID:	EAG-1001139		

		Temperature (^{o}C)	16
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C)	233
Appearance:	Clear	Conductivity (μmhos)	194
		pH (SU)	9.7
		D.O. (ppm)	NM
		Ferrous Iron (mg/L)	NM

Description of measuring point: Top of well casing

Total depth	100	ft	Well diameter (in):	3.25 (0-42' bgs)
Approx. Depth to water	4	ft		3.0 (42-100' bgs)
Water column in well	96	ft	Gallons purged	
Volume/foot (3.25")	0.43	gal/ft	prior to sampling:	~27
Volume/foot (3.0")	0.37	gal/ft		
Well volume	38	gal		

Evacuation method: Submersible pump

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
None	1	250 ml Teflon	None	Filtered Hg
None	1	250 ml amber glass	None	Tritium

Photographs: None

Remarks: Drawdown during pump test/sampling period ~20 feet.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/3/04
Weather:	Clear, ~50°s F	**Sampler(s):**	PMK
Location:	04EA054	**Sampling time:**	1539
Sample ID:	04EA054D		
KEX ID:	EAG-1001140		

		Temperature (^{o}C)	16
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C)	183
Appearance:	Light gray and turbid	Conductivity (μmhos)	152
		pH (SU)	9.7
		D.O. (ppm)	NM
		Ferrous Iron (mg/L)	NM

Description of measuring point: Top of well casing

Total depth	280	ft	Well diameter (in):	3.25 (0-42' bgs)	
Approx. Depth to water	3	ft		3.0 (42-280' bgs)	
Water column in well	277	ft	Gallons purged		
Volume/foot (3.25")	0.43	gal/ft	prior to sampling:	~468	
Volume/foot (3.0")	0.37	gal/ft			
Well volume	105	gal			

Evacuation method: Submersible pump

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
None	1	250 ml Teflon	None	Filtered Hg
None	1	250 ml amber glass	None	Tritium

Photographs: None

Remarks: Driller reported drilling fluid (potable water) loss to formation 140-150 feet bgs.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	8/4/04
Weather:	Clear, ~40°s F	**Sampler(s):**	PMK
Location:	04EA054	**Sampling time:**	1930
Sample ID:	04EA054E		
KEX ID:	EAG-1001141		

		Temperature (^{o}C)	11
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C)	321
Appearance:	Light gray and turbid	Conductivity (μmhos)	238
		pH (SU)	10.2
		D.O. (ppm)	NM
		Ferrous Iron (mg/L)	NM

Description of measuring point: Top of well casing

Total depth	520	ft	Well diameter (in):	3.25 (0-42' bgs)	
Approx. Depth to water	6	ft		3.0 (42-520' bgs)	
Water column in well	514	ft	Gallons purged		
Volume/foot (3.25")	0.43	gal/ft	prior to sampling:	~847	
Volume/foot (3.0")	0.37	gal/ft			
Well volume	192	gal			

Evacuation method: Submersible pump

Tag	# Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
None	1	250 ml Teflon	None	Filtered Hg
None	1	250 ml amber glass	None	Tritium

Photographs: None

Remarks: Water flowing from well casing after drilling and before initial pumping. Loss of ~2,100 gallons of drilling water between 240 and 440 feet below ground surface.

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 9/14/04, 9/15/04, 9/16/04, 9/21/04, 10/6/04, 10/11/04 and 10/12/04

Activities: Collected surface water samples from the Salmon Trout (STRM002, STRM004, and STRE002), Yellow Dog (YDRM002) and Cedar River (CDRM004) monitoring locations.

Completed 5 flow measurements at the above locations on 9/14-9/15/04.

Collected groundwater samples at QAL004A/D, QAL005A/D, and QAL006A/B.

Collected duplicate, field blank and equipment blank samples.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	5
Water Sampling Log	11
Chain of Custody Numbers	102696, 102697, 85416, 104398, 100308, 104396, 102581

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Peter Sabee (PJS), Kari Paulson (KMP), Pete Kero (PMK), and Richard Eagle (RRE),

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (µmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM002	STRMS002	EAG-1001186	9/14/04	16	69	7.3	7
STRM004	STRMS004	EAG-1001187	9/15/04	15	87	7.7	7
STRE002	STRES002	EAG-1001188	9/15/04	13	132	8.0	7
YDRM002	YDRMS002	EAG-1001189	9/14/04	17	90	7.4	7
CDRM004	CDRMS004	EAG-1001190	9/14/04	14	149	8.0	7

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM002	9/14/04	4.3
STRM004	9/15/04	9.2
STRE002	9/15/04	20
YDRM002	9/15/04	16
CDRM004	9/14/04	7.7

North Jackson Company
Groundwater Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)	Ferrous Iron (mg/L)
QAL004A	QALM004A	EAG-1001194	9/21/04	7.2	92	9.1	5	0.1
QAL004D	QALM004D	EAG-1001195	9/21/04	7.7	155	8.4	<0.001	0.2
QAL005A	QALM005A	EAG-1001196	10/6/04	7.7	18	5.4	2	0.3
QAL005D	QALM005D	EAG-1001197	9/16/04	7.9	163	8.2	<0.001	0.8
QAL006A	QALM006A	EAG-1001198	9/16/04	8.5	16	5.5	5	<0.1
QAL006B	QALM006B	EAG-1001199	10/6/04	8.1	177	6.9	<0.001	30

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/14/04
Weather:	Cloudy, breezy, ~70°s F	**Sampler(s):**	PJS
Location:	STRM002	**Sampling time:**	1100
Sample ID:	STRMS002		
KEX ID:	EAG-1001186	Temperature (^{o}C):	16
		Spec. Cond. (μmhos/cm @ 25°C):	69
Odor:	None	Conductivity (μmhos):	57
Appearance:	Slight tannin staining,	pH (SU):	7.3
	slight sediment	D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Masked duplicate (DUPS001, EAG-1001191) collected here.

MDEQ gage = 7.5'.

Meter units: m/sec

Flow Measurement 9/14/04 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.5	0.3	0.0	0.00	0.00	0.0	0.00
3.0	0.8	0.2	0.00	0.00	0.1	0.00
4.0	1.0	0.3	-0.28	-1.00	0.3	-0.30
5.0	0.8	0.4	-0.20	-0.72	0.3	-0.21
5.5	0.5	0.6	-0.10	-0.36	0.3	-0.11
6.0	0.5	0.7	0.09	0.32	0.3	0.10
6.5	0.4	0.9	0.84	3.01	0.3	1.02
6.8	0.3	0.9	0.83	2.97	0.2	0.67
7.0	0.4	0.8	0.53	1.90	0.3	0.57
7.5	0.5	0.7	0.53	1.90	0.4	0.66
8.0	0.5	0.6	0.63	2.26	0.3	0.68
8.5	0.5	0.6	0.43	1.54	0.3	0.46
9.0	0.5	0.4	0.43	1.54	0.2	0.31
9.5	0.5	0.3	0.45	1.61	0.2	0.24
10.0	0.5	0.3	0.30	1.07	0.2	0.16
10.5	0.5	0.3	0.08	0.29	0.2	0.04
11.0	0.5	0.2	0.00	0.00	0.1	0.00
11.5	0.3	0.0	0.00	0.00	0.0	0.00

Total Flow: **4.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/15/04
Weather:	Rain, lightening and thunder, ~70°s F	**Sampler(s):**	PJS/KMP
Location:	STRM004	**Sampling time:**	1245
Sample ID:	STRMS004		
KEX ID:	EAG-1001187	Temperature (^{o}C):	15
		Spec. Cond. (µmhos/cm @ 25°C):	87
Odor:	None	Conductivity (µmhos):	70
Appearance:	Clear	pH (SU):	7.7
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: RP = 3.54'.

Meter units: ft/sec

Flow Measurement 9/15/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.5	0.0	0.00	0.0	0.00
3.0	2.0	0.7	0.01	1.4	0.01
4.0	1.0	0.8	0.17	0.8	0.14
5.0	1.0	0.7	0.35	0.7	0.25
6.0	1.0	0.8	0.54	0.8	0.43
7.0	1.0	1.1	0.86	1.1	0.95
8.0	1.0	1.3	1.13	1.3	1.47
9.0	1.0	1.4	0.98	1.4	1.37
10.0	1.0	1.4	0.92	1.4	1.29
11.0	1.0	1.4	0.84	1.4	1.18
12.0	1.0	1.2	1.12	1.2	1.34
13.0	1.0	1.2	0.52	1.2	0.62
14.0	1.0	1.1	0.04	1.1	0.04
15.0	1.0	0.9	0.02	0.9	0.02
16.0	1.0	0.7	0.11	0.7	0.08
17.0	1.0	0.2	0.23	0.2	0.05
18.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **9.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/15/04
Weather:	Rainy, warm, thunderstorms, ~70°s F	**Sampler(s):**	PJS/KMP
Location:	STRE002	**Sampling time:**	1130
Sample ID:	STRES002		
KEX ID:	EAG-1001188	Temperature (^{o}C):	13
		Spec. Cond. (µmhos/cm @ 25°C):	132
Odor:	None	Conductivity (µmhos):	103
Appearance:	Clear	pH (SU):	8.0
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 9/15/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	1.5	0.4	0.02	0.6	0.01
3.0	1.0	1.0	0.02	1.0	0.02
4.0	1.0	1.2	0.27	1.2	0.32
5.0	1.0	1.6	0.50	1.6	0.80
6.0	1.0	1.6	1.17	1.6	1.87
7.0	1.0	1.5	1.81	1.5	2.72
8.0	1.0	1.5	1.78	1.5	2.67
9.0	1.0	1.5	1.63	1.5	2.45
10.0	1.0	1.4	1.48	1.4	2.07
11.0	1.0	0.9	1.78	0.9	1.60
12.0	1.0	1.3	1.27	1.3	1.65
13.0	1.0	1.2	1.01	1.2	1.21
14.0	1.0	1.0	0.87	1.0	0.87
15.0	1.0	1.0	0.52	1.0	0.52
16.0	1.0	1.0	0.43	1.0	0.43
17.0	1.0	0.6	0.51	0.6	0.31
18.0	1.0	0.5	0.42	0.5	0.21
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **20**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/14/04
Weather:	Partly cloudy, breezy, ~70°s F	**Sampler(s):**	PJS
Location:	YDRM002	**Sampling time:**	1030
Sample ID:	YDRMS002		
KEX ID:	EAG-1001189	Temperature (^{o}C):	17
		Spec. Cond. (µmhos/cm @ 25°C):	90
Odor:	None	Conductivity (µmhos):	76
Appearance:	Slight tannin	pH (SU):	7.4
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: RP = 2.81'.

Meter units: ft/sec

Flow Measurement 9/15/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.7	0.92	0.7	0.64
2.0	0.8	1.0	1.29	0.8	0.97
2.5	0.5	1.5	1.04	0.8	0.78
3.0	0.5	1.4	1.60	0.7	1.12
3.5	0.5	1.5	1.72	0.8	1.29
4.0	0.5	1.5	1.54	0.8	1.16
4.5	0.5	1.5	1.37	0.8	1.03
5.0	0.5	1.5	1.57	0.8	1.18
5.5	0.5	1.7	1.54	0.9	1.31
6.0	0.5	1.5	1.68	0.8	1.26
6.5	0.5	1.6	1.56	0.8	1.25
7.0	0.5	1.4	1.65	0.7	1.16
7.5	0.5	1.3	1.50	0.7	0.98
8.0	0.5	1.2	1.29	0.6	0.77
8.5	0.5	1.0	0.84	0.5	0.42
9.0	0.8	1.0	0.50	0.8	0.38
10.0	1.0	0.6	0.10	0.6	0.06
11.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **16**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/14/04
Weather:	Overcast, light wind, ~70°s F	**Sampler(s):**	PJS
Location:	CDRM004	**Sampling time:**	1330
Sample ID:	CDRMS004		
KEX ID:	EAG-1001190	Temperature (^{o}C):	14
		Spec. Cond. (µmhos/cm @ 25°C):	149
Odor:	None	Conductivity (µmhos):	119
Appearance:	Clear	pH (SU):	8.0
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: m/sec

Flow Measurement 9/14/04 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.4	0.5	0.0	0.00	0.00	0.0	0.00
1.4	0.8	0.5	-0.10	-0.33	0.4	-0.13
2.0	0.8	0.7	-0.02	-0.07	0.6	-0.04
3.0	1.0	1.4	0.05	0.16	1.4	0.22
4.0	1.0	1.5	0.14	0.46	1.5	0.69
5.0	1.0	1.8	0.13	0.43	1.8	0.77
6.0	1.0	1.7	0.16	0.52	1.7	0.89
7.0	1.0	1.6	0.17	0.56	1.6	0.89
8.0	1.0	1.9	0.16	0.52	1.9	1.00
9.0	1.0	1.8	0.16	0.52	1.8	0.94
10.0	1.0	1.8	0.16	0.52	1.8	0.94
11.0	1.0	1.8	0.14	0.46	1.8	0.80
12.0	1.0	1.6	0.10	0.33	1.6	0.52
13.0	1.0	1.7	0.01	0.03	1.7	0.06
14.0	0.9	1.3	0.01	0.03	1.1	0.04
14.7	0.9	1.0	0.02	0.07	0.9	0.06
15.7	0.5	0.0	0.00	0.00	0.0	0.00

Total Flow: **7.7**

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/21/04
Weather:	Sunny, ~70°s F	**Sampler(s):**	PMK
Location:	QAL004A	**Sampling time:**	1305
Sample ID:	QALM004A		
KEX ID:	EAG-1001194		

		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	92
Appearance:	Clear	Conductivity (µmhos):	60
		pH (SU):	9.1
		D.O. (ppm):	5
		Ferrous Iron (mg/L):	0.1

Description of measuring point: Mark on PVC riser

Total depth:	58	ft	Well diameter (in):	2
Approx. Depth to water:	26	ft		
Water column in well:	32	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~26
Well volume:	5	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Masked duplicate (DUPM002, EAG-1001201) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1246	7.2	91	9.1	7
1254	7.2	91	9.1	15
1301	7.2	91	9.1	22
1305	7.2	92	9.1	26

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/21/04
Weather:	Sunny, ~70°s F	**Sampler(s):**	PMK
Location:	QAL004D	**Sampling time:**	1540
Sample ID:	QALM004D		
KEX ID:	EAG-1001195		

		Temperature (^{o}C):	7.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	155
Appearance:	Clear	Conductivity (μmhos):	104
		pH (SU):	8.4
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	17	ft		
Water column in well:	131	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~100
Well volume:	33	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Masked duplicate (DUPM001, EAG-1001200) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1513	7.7	155	8.4	59
1527	7.7	155	8.4	80
1537	7.7	155	8.4	95
1540	7.7	155	8.4	100

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/6/04
Weather:	Sunny, ~60°s F	**Sampler(s):**	PMK
Location:	QAL005A	**Sampling time:**	1227
Sample ID:	QALM005A		
KEX ID:	EAG-1001196		

		Temperature (^{o}C):	7.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	18
Appearance:	Clear	Conductivity (μmhos):	12
		pH (SU):	5.4
		D.O. (ppm):	2
		Ferrous Iron (mg/L):	0.3

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	3	ft		
Water column in well:	25	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~32
Well volume:	4	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Tried to sample initially on 9/16 but pump failed.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1212	8.0	19	5.7	2
1217	7.7	18	5.5	12
1222	7.7	18	5.5	22
1227	7.7	18	5.4	32

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/16/04
Weather:	High winds, sunny, ~60°s F	**Sampler(s):**	PMK
Location:	QAL005D	**Sampling time:**	1630
Sample ID:	QALM005D		
KEX ID:	EAG-1001197		

		Temperature (^{o}C):	7.9
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	163
Appearance:	Clear	Conductivity (µmhos):	109
		pH (SU):	8.2
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.8

Description of measuring point: Mark on PVC riser

Total depth:	130	ft	Well diameter (in):	2.5
Approx. Depth to water:	6	ft		
Water column in well:	124	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~150
Well volume:	32	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~3 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1605	7.8	164	8.1	75
1615	7.9	163	8.1	105
1625	7.9	163	8.2	135
1630	7.9	163	8.2	150

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	9/16/04
Weather:	High winds, ~60°s F	**Sampler(s):**	PMK
Location:	QAL006A	**Sampling time:**	1440
Sample ID:	QALM006A		
KEX ID:	EAG-1001198		

		Temperature (^{o}C):	8.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	16
Appearance:	Clear	Conductivity (μmhos):	11
		pH (SU):	5.5
		D.O. (ppm):	5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	9	ft		
Water column in well:	19	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~63
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1420	8.6	16	5.4	23
1426	8.4	16	5.4	35
1431	8.6	16	5.5	45
1440	8.5	16	5.5	63

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/6/04
Weather:	Sunny, ~50°s F	**Sampler(s):**	PMK
Location:	QAL006B	**Sampling time:**	1055
Sample ID:	QALM006B		
KEX ID:	EAG-1001199		

		Temperature (^{o}C):	8.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	177
Appearance:	Clear, slightly tan	Conductivity (μmhos):	120
		pH (SU):	6.9
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	30

Description of measuring point: Mark on PVC riser

Total depth:	83	ft	Well diameter (in):	2.5
Approx. Depth to water:	23	ft		
Water column in well:	60	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~52
Well volume:	15	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Tried to sample initially on 9/16 but pump failed.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1039	8.1	170	6.9	22
1044	8.1	172	6.9	32
1049	8.1	174	6.9	42
1054	8.1	177	6.9	52

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s):	10/4/04, 10/6/04, 10/11/04, 10/13/04, 10/18/04, 10/19/04, 10/20/04, 10/21/04, 11/3/04
Activities:	Collected surface water samples from the Salmon Trout (STRM001, STRM002, STRM003, STRM004, STRM005, STRW001, STRE001 and STRE002), Yellow Dog (YDRM002 and YDRM003), and Cedar River (CDRA002 and CDRM004) monitoring locations.
	Completed 12 flow measurements at above locations on 10/4/04, 10/6/04 and 10/13/04.
	Collected groundwater samples at QAL001A/D, QAL002A/D, QAL003A/B, QAL004A/D, QAL005A/D, QAL006A/B, QAL007A/D, QAL008A/D, QAL009A/D, QAL010A, QAL015, QAL016, QAL018, QAL020, WLD001, WLD006, WLD016, and WLD021.
	Collected duplicate, field blank and equipment blank samples.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	12
Water Sampling Log	39
Chain of Custody Numbers	102698, 102699, 104966, 104967, 104401 104015, 104399, 104965 and 100308

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry
Illinois State Geological Survey - Tritium

Sampler Name(s): Dan Wiitala (DWW), Pete Kero (PMK), Peter Sabee (PJS), Kari Paulson (KMP), Richard Eagle (RRE), and John Meier (JGM)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STRMS001	EAG-1001206	10/4/04	6.9	40	6.4	3.5
STRM002	STRMS002	EAG-1001207	10/4/04	7.0	57	7.1	7
STRM003	STRMS003	EAG-1001208	10/4/04	6.4	87	7.9	7
STRM004	STRMS004	EAG-1001209	10/6/04	9.4	95	7.7	7
STRM005	STRMS005	EAG-1001210	10/6/04	6.8	135	7.9	8
STRW001	STRWS001	EAG-1001211	10/6/04	8.7	131	7.5	8
STRE001	STRES001	EAG-1001212	10/6/04	7.2	134	7.7	8
STRE002	STRES002	EAG-1001213	10/6/04	7.6	136	7.9	7
YDRM002	YDRMS002	EAG-1001214	10/4/04	7.7	75	7.3	7
YDRM003	YDRMS003	EAG-1001215	10/13/04	8.4	73	7.2	7
CDRA002	CDRAS002	EAG-1001216	10/6/04	8.6	98	7.9	9
CDRM004	CDRMS004	EAG-1001217	10/4/04	6.9	141	7.8	7

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	10/4/04	0.2
STRM002	10/4/04	2.1
STRM003	10/4/04	5.5
STRM004	10/6/04	5.1
STRM005	10/6/04	33
STRW001	10/6/04	3.9
STRE001	10/6/04	11
STRE002	10/6/04	14
YDRM002	10/13/04	9.1
YDRM003	10/13/04	6.4
CDRA002	10/6/04	2.0
CDRM004	10/4/04	12

North Jackson Company
Groundwater Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (µmhos/cm @ 25°C)	pH (SU)	DO (ppm)	Ferrous Iron (mg/L)
QAL001A	QALM001A	EAG-1001228	10/21/04	8.3	83	9.1	7	<0.1
QAL001D	QALM001D	EAG-1001229	10/21/04	7.7	159	8.9	0.15	<0.1
QAL002A	QALM002A	EAG-1001230	10/20/04	7.2	60	9.2	NM	NM
QAL002D	QALM002D	EAG-1001231	10/20/04	7.5	201	8.2	NM	NM
QAL003A	QALM003A	EAG-1001232	10/18/04	9.0	147	8.4	>1	<0.1
QAL003B	QALM003B	EAG-1001233	10/18/04	7.8	156	8.4	<0.001	0.1
QAL004A	QALM004A	EAG-1001234	10/19 & 11/3/04	7.0	90	9.0	6	<0.1
QAL004D	QALM004D	EAG-1001235	10/19 & 11/3/04	7.4	156	8.2	<0.001	0.1
QAL005A	QALM005A	EAG-1001236	10/20/04	7.7	18	5.5	1.5	0.3
QAL005D	QALM005D	EAG-1001237	10/20/04	7.7	168	8.0	<0.001	1.0
QAL006A	QALM006A	EAG-1001238	10/18/04	9.0	15	5.4	>1	<0.1
QAL006B	QALM006B	EAG-1001239	10/18/04	7.8	179	6.9	<0.001	18
QAL007A	QALM007A	EAG-1001240	10/21/04	7.1	50	7.1	8	0.1
QAL007D	QALM007D	EAG-1001241	10/21/04	7.6	221	8.0	0.3	1.5
QAL008A	QALM008A	EAG-1001242	11/3/04	7.4	70	9.2	NM	NM
QAL008D	QALM008D	EAG-1001243	11/3/04	6.8	121	8.4	NM	NM
QAL009A	QALM009A	EAG-1001244	10/20/04	7.3	101	8.4	NM	NM
QAL009D	QALM009D	EAG-1001245	11/3/04	7.4	133	8.5	0.02	NM
QAL010A	QALM010A	EAG-1001246	10/20/04	7.2	85	8.7	5	<0.1
QAL015	QALP015	EAG-1001247	10/18/04	7.0	116	8.2	>1	<0.1
QAL016	QALP016	EAG-1001248	10/20/04	7.1	120	8.6	NM	NM
QAL018	QALP018	EAG-1001249	10/20/04	7.5	141	7.2	NM	NM
QAL020	QALP020	EAG-1001250	10/21/04	8.4	38	6.2	4.5	<0.1
WLD001	WLDP001	EAG-1001220	10/18/04	9.2	163	7.1	>1	1.5
WLD006	WLDP006	EAG-1001225	10/19/04	11	74	5.9	<0.001	22
WLD016	WLDP016	EAG-1001226	10/19/04	8.6	169	8.3	0.4	0.2
WLD021	WLDP021	EAG-1001227	10/19/04	9.7	36	5.7	0.05	2.0

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
WLD001	10/27/04	1428.37	NM	8	NM
WLD002	10/27/04	1433.12	2.35	8	1430.77
WLD003	10/27/04	1435.66	1.91	8	1433.75
WLD004	10/27/04	1448.91	2.51	8	1446.40
WLD005	10/27/04	1453.50	2.41	8	1451.09
WLD006	10/27/04	1459.29	3.91	8	1455.38
WLD007	10/27/04	1453.70	3.16	8	1450.54
WLD008	10/27/04	1456.60	3.05	8	1453.55
WLD009	10/27/04	1460.17	3.05	8	1457.12
WLD010	10/27/04	1450.90	3.42	8	1447.48
WLD011	10/27/04	1449.51	3.08	8	1446.43
WLD012	10/27/04	1448.60	2.61	8	1445.99
WLD013	10/27/04	1447.81	3.06	8	1444.75
WLD014	10/27/04	1443.47	2.02	8	1441.45
WLD015	10/27/04	1431.28	2.22	8	1429.06
WLD016	10/27/04	1428.41	NM	8	NM
WLD017	10/27/04	1427.70	4.06	8	1423.64
WLD018	10/27/04	1427.34	4.24	8	1423.10
WLD019	10/27/04	1424.93	3.85	8	1421.08
WLD020	10/27/04	1424.13	3.95	8	1420.18
WLD021	10/27/04	1420.58	4.20	8	1416.38
WLD022	10/27/04	1425.66	3.03	8	1422.63
WLD023	10/27/04	1416.42	NM	8	NM

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
QAL001A	10/27/04	1462.92	50.20	68	1412.72
QAL001D	11/10/04	1462.81	55.15	88	1407.66
QAL002A	10/27/04	1479.54	44.78	63	1434.76
QAL002D	10/27/04	1479.21	83.29	143	1395.92
QAL003A	11/10/04	1436.95	10.96	33	1425.99
QAL003B	11/10/04	1436.48	23.55	50	1412.93
QAL004A	10/27/04	1451.09	25.88	58	1425.21
QAL004D	10/27/04	1450.94	16.92	148	1434.02
QAL005A	10/27/04	1459.74	5.56	28	1454.18
QAL005D	10/27/04	1459.59	6.65	130	1452.94
QAL006A	10/27/04	1423.92	9.32	28	1414.60
QAL006B	10/27/04	1424.33	24.10	83	1400.23
QAL007A	10/27/04	1479.34	49.17	59	1430.17
QAL007D	10/27/04	1479.45	41.10	183	1438.35
QAL008A	10/27/04	1468.19	77.76	93	1390.43
QAL008D	10/27/04	1467.92	113.85	123	1354.07
QAL009A	10/27/04	1457.41	102.42	113	1354.99
QAL009D	10/27/04	1457.35	102.51	148	1354.84
QAL0010A	10/27/04	1444.55	20.01	51	1424.54
QAL015	10/27/04	1296.09	3.40	7	1292.69
QAL016	10/27/04	1275.73	1.53	7	1274.20
QAL017	10/27/04	1255.39	4.02	7	1251.37
QAL018	10/27/04	1253.47	3.23	11	1250.24
QAL019	10/27/04	1288.68	3.27	7	1285.41
QAL020	10/27/04	1338.70	3.05	7	1335.65
QAL021	10/27/04	1392.19	2.86	7	1389.33
QAL022	10/27/04	1300.95	2.51	7	1298.44
QAL023	10/27/04	1421.39	2.87	35	1418.52
YDRM002	10/27/04	1415.12	2.47	NA	1412.65
STRM002	10/27/04	1400.09	NM	NA	NM

NM Not measured
NA Not applicable

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/4/04
Weather:	Cloudy, ~35° F	**Sampler(s):**	RRE/JGM
Location:	STRM001	**Sampling time:**	1100
Sample ID:	STRMS001		
KEX ID:	EAG-1001206		
		Temperature (^{o}C):	6.9
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	40
Appearance:	Brackish	Conductivity (μmhos):	26
		pH (SU):	6.4
		D.O. (ppm):	3.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: MDEQ gage = 1.0'.

Meter units: ft/sec

Flow Measurement 10/4/04 RRE/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	0.8	1.2	-0.01	0.9	-0.01
1.5	0.5	1.4	0.01	0.7	0.01
2.0	0.5	1.8	0.04	0.9	0.04
2.5	0.5	2.0	0.07	1.0	0.07
3.0	0.5	2.0	0.05	1.0	0.05
3.5	0.5	1.9	0.02	1.0	0.02
4.0	0.5	1.6	0.02	0.8	0.02
4.5	0.8	1.6	0.00	1.2	0.00
5.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **0.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/4/04
Weather:	Cloudy, ~35° F	**Sampler(s):**	RRE
Location:	STRM002	**Sampling time:**	1215
Sample ID:	STRMS002		
KEX ID:	EAG-1001207		
		Temperature (^{o}C):	7.0
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	57
Appearance:	Clear	Conductivity (μmhos):	37
		pH (SU):	7.1
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 10/4/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	1.3	0.2	0.13	0.3	0.03
2.5	0.5	0.2	0.28	0.1	0.03
3.0	0.5	0.5	0.53	0.3	0.13
3.5	0.5	0.8	0.79	0.4	0.32
4.0	0.5	0.8	1.08	0.4	0.43
4.5	0.5	0.8	0.94	0.4	0.38
5.0	0.5	0.5	0.78	0.3	0.20
5.5	0.5	0.4	0.78	0.2	0.16
6.0	0.5	0.3	0.87	0.2	0.13
6.5	0.5	0.3	0.85	0.2	0.13
7.0	0.8	0.3	0.57	0.2	0.13
8.0	1.0	0.2	0.29	0.2	0.06
9.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **2.1**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/4/04
Weather:	Cloudy, ~35° F	**Sampler(s):**	RRE/JGM
Location:	STRM003	**Sampling time:**	1500
Sample ID:	STRMS003		
KEX ID:	EAG-1001208		
		Temperature (^{o}C):	6.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	87
Appearance:	Clear	Conductivity (μmhos):	56
		pH (SU):	7.9
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: MDEQ Gage = 0.44'.

Meter units: ft/sec

Flow Measurement 10/4/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.5	0.21	0.5	0.11
2.0	0.8	0.8	0.89	0.6	0.53
2.5	0.5	1.0	0.92	0.5	0.46
3.0	0.5	1.1	0.86	0.6	0.47
3.5	0.5	1.0	0.74	0.5	0.37
4.0	0.5	0.9	0.76	0.5	0.34
4.5	0.5	0.8	0.85	0.4	0.34
5.0	0.5	0.7	0.93	0.4	0.33
5.5	0.5	0.7	0.84	0.4	0.29
6.0	0.5	0.7	0.90	0.4	0.32
6.5	0.5	0.6	0.87	0.3	0.26
7.0	0.5	0.7	0.89	0.4	0.31
7.5	0.5	0.7	0.89	0.4	0.31
8.0	0.5	0.7	0.84	0.4	0.29
8.5	0.5	0.7	1.03	0.4	0.36
9.0	0.5	0.7	0.71	0.4	0.25
9.5	0.5	0.6	0.44	0.3	0.13
10.0	0.8	0.5	0.01	0.4	0.00
11.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **5.5**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/6/04
Weather:	Clear, ~70° F	**Sampler(s):**	RRE/JGM
Location:	STRM004	**Sampling time:**	1345
Sample ID:	STRMS004		
KEX ID:	EAG-1001209		
		Temperature (^{o}C):	9.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	95
Appearance:	Clear	Conductivity (μmhos):	67
		pH (SU):	7.7
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: RP = 3.66'.

Meter units: ft/sec

Flow Measurement 10/6/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	2.0	0.5	0.00	1.0	0.00
5.0	1.5	0.6	0.10	0.9	0.09
6.0	1.0	0.8	0.30	0.8	0.24
7.0	1.0	0.9	0.46	0.9	0.41
8.0	1.0	1.1	0.70	1.1	0.77
9.0	1.0	1.3	0.85	1.3	1.11
10.0	1.0	1.3	0.42	1.3	0.55
11.0	1.0	1.3	0.85	1.3	1.11
12.0	1.0	1.0	0.48	1.0	0.48
13.0	1.0	0.9	0.34	0.9	0.31
14.0	1.0	1.0	0.04	1.0	0.04
15.0	1.0	0.9	0.04	0.9	0.04
16.0	1.5	0.5	0.00	0.8	0.00
18.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **5.1**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/6/04
Weather:	Clear, calm, ~50° F	**Sampler(s):**	RRE/JGM
Location:	STRM005	**Sampling time:**	0845
Sample ID:	STRMS005		
KEX ID:	EAG-1001210		
		Temperature (^{o}C):	6.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	135
Appearance:	Clear	Conductivity (μmhos):	88
		pH (SU):	7.9
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Gage = 2.22'.

USGS & KBIC personnel at STRM005 bridge.

Meter units: ft/sec

Flow Measurement 10/6/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
40.0	1.0	0.0	0.00	0.0	0.00
38.0	2.0	0.4	0.51	0.8	0.41
36.0	2.0	0.7	0.53	1.4	0.74
34.0	2.0	1.0	0.69	2.0	1.38
32.0	2.0	1.0	0.78	2.0	1.56
30.0	2.0	1.0	0.80	2.0	1.60
28.0	2.0	1.1	0.79	2.2	1.74
26.0	2.0	1.1	0.88	2.2	1.94
24.0	2.0	1.2	0.90	2.4	2.16
22.0	2.0	1.2	0.79	2.4	1.90
20.0	2.0	1.2	0.89	2.4	2.14
18.0	2.0	1.2	0.86	2.4	2.06
16.0	2.0	1.2	0.81	2.4	1.94
14.0	2.0	1.2	0.86	2.4	2.06
12.0	2.0	1.3	0.90	2.6	2.34
10.0	2.0	1.2	0.97	2.4	2.33
8.0	2.0	1.1	0.97	2.2	2.13
6.0	2.0	1.0	0.84	2.0	1.68
4.0	2.0	1.0	0.64	2.0	1.28
2.0	2.0	1.0	0.51	2.0	1.02
0.0	1.0	1.0	0.32	1.0	0.32

Total Flow: **33**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/6/04
Weather:	Clear, breezy, ~65° F	**Sampler(s):**	RRE/JGM
Location:	STRW001	**Sampling time:**	1315
Sample ID:	STRWS001		
KEX ID:	EAG-1001211		
		Temperature (^{o}C):	8.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	131
Appearance:	Clear	Conductivity (μmhos):	90
		pH (SU):	7.5
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 10/6/04 RRE/JGM **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	0.8	0.3	1.70	0.2	0.38
1.5	0.5	0.5	1.83	0.3	0.46
2.0	0.5	0.6	2.03	0.3	0.61
2.5	0.5	0.6	1.72	0.3	0.52
3.0	0.5	0.7	1.76	0.4	0.62
3.5	0.5	0.5	1.92	0.3	0.48
4.0	0.5	0.6	1.82	0.3	0.55
4.5	0.5	0.4	1.66	0.2	0.33
5.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **3.9**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/6/04
Weather:	Clear, breezy, ~55° F	**Sampler(s):**	RRE/JGM
Location:	STRE001	**Sampling time:**	1015
Sample ID:	STRES001		
KEX ID:	EAG-1001212		
		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	134
Appearance:	Clear	Conductivity (μmhos):	88
		pH (SU):	7.7
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 10/6/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	2.0	0.3	0.13	0.6	0.08
5.0	1.5	0.5	0.34	0.8	0.26
6.0	1.0	0.8	0.59	0.8	0.47
7.0	1.0	0.9	0.33	0.9	0.30
8.0	1.0	0.8	1.07	0.8	0.86
9.0	1.0	0.8	1.04	0.8	0.83
10.0	1.0	0.8	1.15	0.8	0.92
11.0	1.0	1.0	0.79	1.0	0.79
12.0	1.0	1.4	1.01	1.4	1.41
13.0	1.0	1.5	0.81	1.5	1.22
14.0	1.0	1.6	0.77	1.6	1.23
15.0	1.0	1.4	0.81	1.4	1.13
16.0	1.0	1.4	0.86	1.4	1.20
17.0	1.0	0.9	0.24	0.9	0.22
18.0	1.0	0.5	0.26	0.5	0.13
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **11**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/6/04
Weather:	Clear, breezy, ~60° F	**Sampler(s):**	RRE/JGM
Location:	STRE002	**Sampling time:**	1130
Sample ID:	STRES002		
KEX ID:	EAG-1001213		
		Temperature (^{o}C):	7.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	136
Appearance:	Clear	Conductivity (μmhos):	91
		pH (SU):	7.9
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: RP = 3.11'.

Masked duplicate (DUPS002, EAG-1001219) collected here.

Meter units: ft/sec

Flow Measurement 10/6/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	1.5	0.6	0.02	0.9	0.02
3.0	1.0	0.6	0.17	0.6	0.10
4.0	0.8	1.4	0.50	1.1	0.53
4.5	0.5	1.5	0.79	0.8	0.59
5.0	0.5	1.5	0.98	0.8	0.74
5.5	0.5	1.5	1.22	0.8	0.92
6.0	0.5	1.4	1.19	0.7	0.83
6.5	0.5	1.3	1.43	0.7	0.93
7.0	0.5	1.3	1.45	0.7	0.94
7.5	0.5	1.3	1.14	0.7	0.74
8.0	0.5	1.4	1.18	0.7	0.83
8.5	0.5	1.4	1.02	0.7	0.71
9.0	0.5	1.3	1.15	0.7	0.75
9.5	0.5	1.2	1.03	0.6	0.62
10.0	0.5	1.2	1.24	0.6	0.74
10.5	0.5	0.9	1.25	0.4	0.56
11.0	0.5	0.9	0.90	0.5	0.41
11.5	0.5	1.2	1.09	0.6	0.65
12.0	0.5	1.1	0.98	0.6	0.54
12.5	0.5	1.1	0.78	0.6	0.43
13.0	0.5	1.1	0.69	0.6	0.38
13.5	0.5	0.7	0.76	0.4	0.27
14.0	0.8	0.7	0.57	0.5	0.30
15.0	1.0	0.6	0.44	0.6	0.26
16.0	1.0	0.6	0.50	0.6	0.30
17.0	1.0	0.4	0.37	0.4	0.15
18.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **14**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/4/04
Weather:	Overcast, windy, ~35° F	**Sampler(s):**	RRE/JGM
Location:	YDRM002	**Sampling time:**	0900
Sample ID:	YDRMS002		
KEX ID:	EAG-1001214		
		Temperature (^{o}C):	7.7
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	75
Appearance:	Brackish	Conductivity (µmhos):	50
		pH (SU):	7.3
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: RP = 3.05'.

Meter units: ft/sec

Flow Measurement 10/13/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.5	0.5	0.0	0.00	0.00	0.00
1.5	1.0	0.5	0.52	0.50	0.26
2.5	0.8	0.8	1.10	0.60	0.66
3.0	0.5	1.2	0.86	0.60	0.52
3.5	0.5	1.3	1.21	0.65	0.79
4.0	0.5	1.3	1.24	0.65	0.81
4.5	0.5	1.3	1.24	0.65	0.81
5.0	0.5	1.3	1.13	0.65	0.73
5.5	0.5	1.3	0.88	0.65	0.57
6.0	0.5	1.3	1.22	0.65	0.79
6.5	0.5	1.2	1.13	0.60	0.68
7.0	0.5	1.2	1.14	0.60	0.68
7.5	0.5	1.2	1.20	0.60	0.72
8.0	0.8	0.9	0.97	0.68	0.65
9.0	1.0	0.7	0.53	0.70	0.37
10.0	1.0	0.6	0.15	0.60	0.09
11.0	0.5	0.0	0.00	0.00	0.00

Total Flow: **9.1**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/13/04
Weather:	Clear, breezy, ~60°s F	**Sampler(s):**	PJS
Location:	YDRM003	**Sampling time:**	1345
Sample ID:	YDRMS003		
KEX ID:	EAG-1001215		
		Temperature (°C):	8.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	73
Appearance:	Slight tannin	Conductivity (µmhos):	50
		pH (SU):	7.2
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: RP = 3.40'.

Beaver dam upstream.

Meter units: ft/sec

Flow Measurement 10/13/04 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.9	0.4	-0.07	0.4	-0.02
2.8	0.8	0.7	0.10	0.6	0.06
3.6	0.8	1.0	0.26	0.8	0.21
4.4	0.8	1.2	0.20	1.0	0.19
5.2	0.6	1.4	0.30	0.8	0.25
5.6	0.4	1.5	0.49	0.6	0.30
6.0	0.4	1.5	0.59	0.6	0.35
6.4	0.4	1.6	0.62	0.6	0.40
6.8	0.4	1.4	0.69	0.6	0.39
7.2	0.4	1.5	0.69	0.6	0.41
7.6	0.4	1.5	0.62	0.6	0.37
8.0	0.4	1.5	0.62	0.6	0.37
8.4	0.4	1.5	0.66	0.6	0.39
8.8	0.4	1.3	0.75	0.5	0.39
9.2	0.4	1.3	0.75	0.5	0.39
9.6	0.4	1.4	0.72	0.6	0.40
10.0	0.4	1.5	0.69	0.6	0.41
10.4	0.4	1.5	0.56	0.6	0.33
10.8	0.3	1.4	0.46	0.4	0.19
11.0	0.4	1.3	0.43	0.5	0.22
11.6	0.4	1.1	0.36	0.4	0.16
11.8	0.4	1.0	0.30	0.4	0.12
12.4	0.7	0.7	0.23	0.5	0.11
13.2	0.8	0.3	0.03	0.2	0.01
14.0	0.9	0.2	0.00	0.2	0.00
15.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **6.4**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/6/04
Weather:	Clear, calm, ~70° F	**Sampler(s):**	RRE/JGM
Location:	CDRA002	**Sampling time:**	1530
Sample ID:	CDRAS002		
KEX ID:	EAG-1001216		
		Temperature (^{o}C):	8.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	98
Appearance:	Clear	Conductivity (μmhos):	67
		pH (SU):	7.9
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Masked duplicate (DUPS001, EAG-1001218) collected here.

Meter units: ft/sec

Flow Measurement RRE 10/6/04 **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.5	0.3	0.2	0.91	0.1	0.05
1.0	0.5	0.5	1.53	0.3	0.38
1.5	0.5	0.4	1.39	0.2	0.28
2.0	0.5	0.4	2.83	0.2	0.57
2.5	0.5	0.4	2.30	0.2	0.46
3.0	0.5	0.3	1.48	0.2	0.22
3.5	0.3	0.2	0.93	0.1	0.05

Total Flow: **2.0**

North Jackson Company
Surface Water Sampling Log

Proj. Name: Eagle BES
Weather: Cloudy, ~35° F
Location: CDRM004
Sample ID: CDRMS004
KEX ID: EAG-1001217

Date: 10/4/04
Sampler(s): RRE/JGM
Sampling time: 1340

Odor: None
Appearance: Clear

Temperature (^{o}C): 6.9
Spec. Cond. (µmhos/cm @ 25°C): 141
Conductivity (µmhos): 92
pH (SU): 7.8
D.O. (ppm): 7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None
Remarks:

Meter units: ft/sec

Flow Measurement 10/4/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.8	0.37	0.8	0.30
2.0	1.0	1.2	0.47	1.2	0.56
3.0	1.0	1.3	0.28	1.3	0.36
4.0	0.8	1.8	0.61	1.4	0.82
4.5	0.5	2.0	0.66	1.0	0.66
5.0	0.5	2.0	0.66	1.0	0.66
5.5	0.5	2.0	0.73	1.0	0.73
6.0	0.5	2.0	0.74	1.0	0.74
6.5	0.5	1.9	0.73	1.0	0.69
7.0	0.5	1.9	0.75	1.0	0.71
7.5	0.5	1.8	0.73	0.9	0.66
8.0	0.5	1.8	0.74	0.9	0.67
8.5	0.5	1.9	0.72	1.0	0.68
9.0	0.5	1.8	0.70	0.9	0.63
9.5	0.5	1.8	0.69	0.9	0.62
10.0	0.5	1.6	0.61	0.8	0.49
10.5	0.5	1.6	0.65	0.8	0.52
11.0	0.5	1.4	0.65	0.7	0.46
11.5	0.5	1.3	0.57	0.7	0.37
12.0	0.8	1.3	0.38	1.0	0.37
13.0	1.0	1.1	0.24	1.1	0.26
14.0	0.5	1.0	0.00	0.5	0.00

Total Flow: **12**

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/21/04
Weather:	Overcast, breezy, ~50°s F	**Sampler(s):**	KMP/PJS
Location:	QAL001A	**Sampling time:**	1430
Sample ID:	QALM001A		
KEX ID:	EAG-1001228		

		Temperature (^{o}C):	8.3
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	83
Appearance:	Clear	Conductivity (μmhos):	56
		pH (SU):	9.1
		D.O. (ppm):	7
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	68	ft	Well diameter (in):	2
Approx. Depth to water:	52	ft		
Water column in well:	16	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~17
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1405	8.3	84	9.1	5
1415	8.3	84	9.1	10
1425	8.3	83	9.1	15
1430	8.3	83	9.1	17

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/21/04
Weather:	Thin cloud cover, breezy, ~50°s F	**Sampler(s):**	KMP/PJS
Location:	QAL001D	**Sampling time:**	1515
Sample ID:	QALM001D		
KEX ID:	EAG-1001229		

		Temperature (^{o}C):	7.7
Odor:	Slight hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	159
Appearance:	Slightly turbid	Conductivity (µmhos):	104
		pH (SU):	8.9
		D.O. (ppm):	0.15
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	88	ft	Well diameter (in):	2.5
Approx. Depth to water:	53	ft		
Water column in well:	35	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~50
Well volume:	9	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1440	7.6	165	8.9	32
1455	7.6	163	8.9	40
1510	7.7	159	8.9	47
1515	7.7	159	8.9	50

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/20/04
Weather:	Overcast, calm, ~40°s F	**Sampler(s):**	KMP/PJS
Location:	QAL002A	**Sampling time:**	1230
Sample ID:	QALM002A		
KEX ID:	EAG-1001230		

		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	60
Appearance:	Some sediment from bailing	Conductivity (μmhos):	40
		pH (SU):	9.2
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	63	ft	Well diameter (in):	2
Approx. Depth to water:	45	ft		
Water column in well:	18	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~24
Well volume:	3	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent.

Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/20/04
Weather:	Overcast, calm, ~40°s F	**Sampler(s):**	PJS/KMP
Location:	QAL002D	**Sampling time:**	1435
Sample ID:	QALM002D		
KEX ID:	EAG-1001231		

		Temperature (^{o}C):	7.5
Odor:	Slight hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	201
Appearance:	Some sediment from bailing	Conductivity (µmhos):	134
		pH (SU):	8.2
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	143	ft	Well diameter (in):	2.5
Approx. Depth to water:	86	ft		
Water column in well:	57	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~28
Well volume:	15	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent.

Dry at 28 gal so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/18/04
Weather:	Partly sunny, snow cover, ~30°s F	**Sampler(s):**	PMK/RRE
Location:	QAL003A	**Sampling time:**	1130
Sample ID:	QALM003A		
KEX ID:	EAG-1001232		

		Temperature (^{o}C):	9.0
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	147
Appearance:	Tan, silty	Conductivity (µmhos):	102
		pH (SU):	8.4
		D.O. (ppm):	>1
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	33	ft	Well diameter (in):	2
Approx. Depth to water:	11	ft		
Water column in well:	21	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~17
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Well pumped dry, therefore purging was conducted in cycles.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1113	9.1	144	8.4	6
1122	9.2	148	8.4	11
1126	8.8	147	8.5	15
1133	9.0	147	8.4	17

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/18/04
Weather:	Partly sunny, snow cover, ~30°s F	**Sampler(s):**	PMK/RRE
Location:	QAL003B	**Sampling time:**	1150
Sample ID:	QALM003B		
KEX ID:	EAG-1001233		

		Temperature (^{o}C):	7.8
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	156
Appearance:	Clear	Conductivity (µmhos):	105
		pH (SU):	8.4
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.1

Description of measuring point: Mark on PVC riser

Total depth:	50	ft	Well diameter (in):	2.5
Approx. Depth to water:	24	ft		
Water column in well:	26	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~21
Well volume:	7	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.6 gpm. Well condition excellent.
DEQ personnel at site.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1124	7.8	160	8.3	5
1130	7.7	159	8.4	9
1143	7.8	157	8.3	17
1150	7.8	156	8.4	21

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/19 & 11/3/04
Weather:	Overcast, ~40°s F	**Sampler(s):**	PMK/JGM
Location:	QAL004A	**Sampling time:**	1600
Sample ID:	QALM004A		(10/19/04)
KEX ID:	EAG-1001234		

		Temperature (^{o}C):	7.0
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	90
Appearance:	Clear	Conductivity (µmhos):	59
		pH (SU):	9.0
		D.O. (ppm):	6
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	58	ft	Well diameter (in):	2
Approx. Depth to water:	26	ft		
Water column in well:	32	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~36
Well volume:	5	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Date	Tag	# Collected	Bottle	Preservative	Parameter
10/19	Green	1	1000 ml plastic	Ice	Various
10/19	Red stripe	1	500 ml plastic	HNO3	Filtered metals
11/3	None	1	250 ml Teflon	None	Filtered Hg
10/19	Orange	1	1000 ml amber glass	None	Tritium

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Pump failed. Tritium sampled on 10/19 at 1630. Mercury sampled 11/3 at 1530.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1549	7.0	90	9.0	14
1555	7.0	90	9.0	26
1600	7.0	90	9.0	36

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/19 & 11/3/04
Weather:	Overcast, ~40°s F	**Sampler(s):**	PMK/JGM
Location:	QAL004D	**Sampling time:**	1630
Sample ID:	QALM004D		(10/19/04)
KEX ID:	EAG-1001235		
		Temperature (^{o}C):	7.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	156
Appearance:	Clear	Conductivity (µmhos):	103
		pH (SU):	8.2
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.1

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	17	ft		
Water column in well:	131	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~106
Well volume:	33	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

	Tag	# Collected	Bottle	Preservative	Parameter
10/19	Green	1	1000 ml plastic	Ice	Various
10/19	Red stripe	1	500 ml plastic	HNO3	Filtered metals
10/19	None	1	250 ml Teflon	None	Filtered Hg
11/3	Orange	1	1000 ml amber glass	None	Tritium

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Tritium sampled 11/3 at 1530.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1557	7.4	156	8.1	40
1607	7.4	156	8.1	60
1617	7.4	156	8.2	80
1630	7.4	156	8.2	106

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/20/04
Weather:	Partly sunny, ~40°s F	**Sampler(s):**	PMK/RRE
Location:	QAL005A	**Sampling time:**	0915
Sample ID:	QALM005A		
KEX ID:	EAG-1001236		

		Temperature (^{o}C):	7.7
Odor:	Slightly swampy	Spec. Cond. (µmhos/cm @ 25°C):	18
Appearance:	Clear	Conductivity (µmhos):	12
		pH (SU):	5.5
		D.O. (ppm):	1.5
		Ferrous Iron (mg/L):	0.3

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	6	ft		
Water column in well:	22	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~45
Well volume:	4	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg
Orange	1	1000 ml amber glass	None	Tritium

Photographs: None

Remarks: Pump rate ~3 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
905	7.7	18	5.6	15
912	7.7	18	5.5	36
915	7.7	18	5.5	45

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/20/04
Weather:	Partly sunny, ~40°s F	**Sampler(s):**	PMK/RRE
Location:	QAL005D	**Sampling time:**	0945
Sample ID:	QALM005D		
KEX ID:	EAG-1001237		

		Temperature (^{o}C):	7.7
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	168
Appearance:	Clear	Conductivity (µmhos):	113
		pH (SU):	8.0
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	1.0

Description of measuring point: Mark on PVC riser

Total depth:	130	ft	Well diameter (in):	2.5
Approx. Depth to water:	7	ft		
Water column in well:	123	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~96
Well volume:	31	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg
Orange	1	1000 ml amber glass	None	Tritium

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
917	7.7	170	8.0	40
927	7.7	169	8.0	60
937	7.7	168	8.0	80
945	7.7	168	8.0	96

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/18/04
Weather:	Partly sunny, snow on ground, ~30°s F	**Sampler(s):**	PMK/RRE
Location:	QAL006A	**Sampling time:**	1000
Sample ID:	QALM006A		
KEX ID:	EAG-1001238		

		Temperature (^{o}C):	9.0
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	15
Appearance:	Clear	Conductivity (µmhos):	11
		pH (SU):	5.4
		D.O. (ppm):	>1
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	10	ft		
Water column in well:	18	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~32
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2.4 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
952	8.9	16	5.4	16
956	9.0	16	5.4	24
1000	9.0	15	5.4	32

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/18/04
Weather:	Partly sunny, snow on ground, ~30°s F	**Sampler(s):**	PMK/RRE
Location:	QAL006B	**Sampling time:**	1030
Sample ID:	QALM006B		
KEX ID:	EAG-1001239		

		Temperature (^{o}C):	7.8
Odor:	Swampy, hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	179
Appearance:	Slightly tan	Conductivity (μmhos):	121
		pH (SU):	6.9
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	18

Description of measuring point: Mark on PVC riser

Total depth:	83	ft	Well diameter (in):	2.5
Approx. Depth to water:	24	ft		
Water column in well:	59	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~74
Well volume:	15	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Sample time recorded as 1000 on labels and COC but time was actually 1030.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1009	7.8	172	6.8	36
1019	7.8	176	6.8	56
1023	7.8	178	6.9	64
1028	7.8	179	6.9	74

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/21/04
Weather:	Clear, breezy, ~40°s F	**Sampler(s):**	PJS/DWW
Location:	QAL007A	**Sampling time:**	1025
Sample ID:	QALM007A		
KEX ID:	EAG-1001240		

		Temperature (^{o}C):	7.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	50
Appearance:	Clear	Conductivity (µmhos):	33
		pH (SU):	7.1
		D.O. (ppm):	8
		Ferrous Iron (mg/L):	0.1

Description of measuring point: Mark on PVC riser

Total depth:	59	ft	Well diameter (in):	2
Approx. Depth to water:	40	ft		
Water column in well:	19	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~52
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Masked duplicate (DUPM002, EAG-1001257) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1010	7.1	50	7.1	30
1015	7.1	49	7.1	38
1020	7.1	50	7.1	45
1025	7.1	50	7.1	52

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/21/04
Weather:	Clear, breezy, ~40°s F	**Sampler(s):**	PJS/DWW
Location:	QAL007D	**Sampling time:**	1145
Sample ID:	QALM007D		
KEX ID:	EAG-1001241		

		Temperature (^{o}C):	7.6
Odor:	Slight iron	Spec. Cond. (µmhos/cm @ 25°C):	221
Appearance:	Clear, became	Conductivity (µmhos):	147
	slightly turbid	pH (SU):	8.0
		D.O. (ppm):	0.3
		Ferrous Iron (mg/L):	1.5

Description of measuring point: Mark on PVC riser

Total depth:	183	ft	Well diameter (in):	2.5
Approx. Depth to water:	50	ft		
Water column in well:	133	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~120
Well volume:	34	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1050	7.7	242	8.1	37
1115	7.6	222	8.0	75
1135	7.6	221	8.0	105
1145	7.6	221	8.0	120

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/3/04
Weather:	Sunny, clear, breezy, ~50°s F	**Sampler(s):**	PJS/KMP
Location:	QAL008A	**Sampling time:**	1225
Sample ID:	QALM008A		
KEX ID:	EAG-1001242		

		Temperature (^{o}C):	7.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	70
Appearance:	Turbid from bailing	Conductivity (µmhos):	46
		pH (SU):	9.2
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	93	ft	Well diameter (in):	2
Approx. Depth to water:	78	ft		
Water column in well:	15	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~9
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg
Orange	1	1000 ml amber glass	None	Tritium

Photographs: Yes

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/3/04
Weather:	Sunny, clear, breezy, ~40°s F	**Sampler(s):**	PJS/KMP
Location:	QAL008D	**Sampling time:**	1300
Sample ID:	QALM008D		
KEX ID:	EAG-1001243		

		Temperature (^{o}C):	6.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	121
Appearance:	Turbid from bailing	Conductivity (μmhos):	79
		pH (SU):	8.4
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	123	ft	Well diameter (in):	2.5
Approx. Depth to water:	114	ft		
Water column in well:	9	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~11
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg
Orange	1	1000 ml amber glass	None	Tritium

Photographs: Yes

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/20/04
Weather:	Partly sunny, ~50°s F	**Sampler(s):**	PMK/RRE
Location:	QAL009A	**Sampling time:**	1500
Sample ID:	QALM009A		
KEX ID:	EAG-1001244		

		Temperature (^{o}C):	7.3
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	101
Appearance:	Tan, turbid	Conductivity (µmhos):	67
		pH (SU):	8.4
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	113	ft	Well diameter (in):	2
Approx. Depth to water:	102	ft		
Water column in well:	11	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~2.5
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/3/04
Weather:	Sunny, clear, breezy, ~40°s F	**Sampler(s):**	PJS/KMP
Location:	QAL009D	**Sampling time:**	1450
Sample ID:	QALM009D		
KEX ID:	EAG-1001245		

		Temperature (^{o}C):	7.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	133
Appearance:	None	Conductivity (µmhos):	86
		pH (SU):	8.5
		D.O. (ppm):	0.02
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	103	ft		
Water column in well:	45	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~29
Well volume:	11	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1357	7.6	131	8.6	3
1414	7.6	133	8.5	11
1440	7.5	133	8.5	24
1450	7.4	133	8.5	29

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/20/04
Weather:	Overcast, ~40°s F	**Sampler(s):**	PMK/RRE
Location:	QAL010A	**Sampling time:**	1200
Sample ID:	QALM010A		
KEX ID:	EAG-1001246		

		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	85
Appearance:	Clear	Conductivity (μmhos):	56
		pH (SU):	8.7
		D.O. (ppm):	5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	51	ft	Well diameter (in):	2
Approx. Depth to water:	20	ft		
Water column in well:	31	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~54
Well volume:	5	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Masked duplicate (DUPM003, EAG-1001258) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1150	7.2	89	8.5	24
1155	7.2	87	8.6	34
1200	7.2	86	8.6	44
1205	7.2	85	8.7	54

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/18/04
Weather:	Overcast, snow on ground, ~30°s F	**Sampler(s):**	PMK/RRE
Location:	QAL015	**Sampling time:**	1350
Sample ID:	QALP015		
KEX ID:	EAG-1001247		

		Temperature (^{o}C):	7.0
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	116
Appearance:	Clear	Conductivity (μmhos):	76
		pH (SU):	8.2
		D.O. (ppm):	>1
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	3	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~6
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.7 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1345	7.0	116	8.2	2
1348	7.0	116	8.2	4
1350	7.0	116	8.2	5.4

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/20/04
Weather:	Cloudy, calm, ~50°s F	**Sampler(s):**	PJS/KMP
Location:	QAL016	**Sampling time:**	1530
Sample ID:	QALP016		
KEX ID:	EAG-1001248		

		Temperature (^{o}C):	7.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	120
Appearance:	Clear	Conductivity (µmhos):	79
		pH (SU):	8.6
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	1	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~6
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1526	7.2	126	8.6	2
1528	7.2	125	8.6	4
1530	7.1	121	8.6	6

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/20/04
Weather:	Cloudy, calm, ~50°s F	**Sampler(s):**	PJS/KMP
Location:	QAL018	**Sampling time:**	1610
Sample ID:	QALP018		
KEX ID:	EAG-1001249		

		Temperature (^{o}C):	7.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	141
Appearance:	Clear	Conductivity (µmhos):	94
		pH (SU):	7.2
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Top of stainless pipe

Total depth:	12	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	8	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~7
Well volume:	0.5	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg
Orange	1	1000 ml amber glass	None	Tritium

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Masked duplicate (DUPP004, EAG-1001259) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1558	7.6	142	7.3	4
1602	7.5	142	7.2	5
1606	7.5	141	7.2	6
1610	7.5	141	7.2	7

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/21/04
Weather:	Clear, calm, ~50°s F	**Sampler(s):**	PJS/DWW
Location:	QAL020	**Sampling time:**	1545
Sample ID:	QALP020		
KEX ID:	EAG-1001250		

		Temperature (^{o}C):	8.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	38
Appearance:	Clear	Conductivity (μmhos):	25
		pH (SU):	6.2
		D.O. (ppm):	4.5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~5
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg
Orange	1	1000 ml amber glass	None	Tritium

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1533	8.4	37	6.4	2
1537	8.3	38	6.2	3
1541	8.4	38	6.1	4
1545	8.4	38	6.2	5

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/18/04
Weather:	Overcast, snow cover, ~45° F	**Sampler(s):**	PMK/REE
Location:	WLD001	**Sampling time:**	1530
Sample ID:	WLDP001		
KEX ID:	EAG-1001220		
		Temperature (^{o}C):	9.2
Odor:	Slightly swampy	Spec. Cond. (μmhos/cm @ 25°C):	163
Appearance:	Clear, tan tinge	Conductivity (μmhos):	113
		pH (SU):	7.1
		D.O. (ppm):	>1
		Ferrous Iron (mg/L):	1.5

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~10
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1514	9.0	161	7.2	2
1517	9.2	162	7.1	3.5
1520	9.2	163	7.1	5
1530	9.2	163	7.1	10

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/19/04
Weather:	Overcast, ~40°s F	**Sampler(s):**	PMK/JGM
Location:	WLD006	**Sampling time:**	1345
Sample ID:	WLDP006		
KEX ID:	EAG-1001225		

		Temperature (^{o}C):	11
Odor:	Swampy	Spec. Cond. (µmhos/cm @ 25°C):	74
Appearance:	Slightly tan	Conductivity (µmhos):	53
		pH (SU):	5.9
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	22

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~5
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Masked duplicate (DUPP001, EAG-1001256) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1337	10	69	5.9	1
1343	11	73	5.9	3
1345	11	74	5.9	4
1347	11	74	5.9	5

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/19/04
Weather:	Partly sunny, ~30°s F	**Sampler(s):**	PMK/JGM
Location:	WLD016	**Sampling time:**	1015
Sample ID:	WLDP016		
KEX ID:	EAG-1001226		

		Temperature (^{o}C):	8.6
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	169
Appearance:	Clear	Conductivity (µmhos):	116
		pH (SU):	8.3
		D.O. (ppm):	0.4
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~3
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1008	8.6	169	8.3	1
1010	8.6	169	8.3	2
1015	8.6	169	8.3	3

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	10/19/04
Weather:	Partly sunny, ~30°s F	**Sampler(s):**	PMK/JGM
Location:	WLD021	**Sampling time:**	1140
Sample ID:	WLDP021		
KEX ID:	EAG-1001227		

		Temperature (^{o}C):	9.7
Odor:	Sl. swampy, hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	36
Appearance:	Clear	Conductivity (μmhos):	26
		pH (SU):	5.7
		D.O. (ppm):	0.05
		Ferrous Iron (mg/L):	2.0

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~4
Well volume:	0.2	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1132	9.6	35	5.8	1
1135	9.6	36	5.7	2
1137	9.7	36	5.7	3
1139	9.7	36	5.7	4

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 11/9/04 and 11/10/04.

Activities: Collected surface water samples from the Salmon Trout (STRM001, STRM002, STRM003 and STRE006), Yellow Dog (YDRM002) and Cedar Creek (CDRM004) monitoring locations.

Completed 6 flow measurements at the above locations on 11/8/04, 11/9/04 and 11/10/04.

Collected duplicate, field blank and equipment blank samples.

Field Report Attachments

Field Analytical Data Summary	Yes
Flow Measurement	6
Water Sampling Log	6
Chain of Custody Numbers	104968, 104964

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Peter Sabee (PJS), Kari Paulson (KMP) and Richard Eagle (RRE)

North Jackson Company
Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STRMS001	EAG-1001270	11/9/04	2.2	38	6.3	5
STRM002	STRMS002	EAG-1001268	11/9/04	2.4	57	7.3	9
STRM003	STRMS003	EAG-1001269	11/9/04	1.9	96	7.8	9
STRE006	STRES006	EAG-1001270	11/10/04	6.5	131	7.8	NM
YDRM002	YDRMS002	EAG-1001271	11/9/04	1.7	54	7.0	9
CDRM004	CDRMS004	EAG-1001272	11/9/04	2.6	134	7.8	9

NM Not measured

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	11/9/04	0.3
STRM002	11/8/04	1.6
STRM003	11/8/04	5.7
STRE006	11/10/04	0.2
YDRM002	11/8/04	20
CDRM004	11/8/04	12

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/9/04
Weather:	Breezy, partly cloudy, ~30°s F	**Sampler(s):**	PJS/KMP
Location:	STRM001	**Sampling time:**	1400
Sample ID:	STRMS001		
KEX ID:	EAG-1001270		
		Temperature (^{o}C)	2.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C)	38
Appearance:	Clear	Conductivity (μmhos)	21
		pH (SU)	6.3
		D.O. (ppm)	5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Masked duplicate (DUPS001, EAG-1001273) collected here.

Meter units: ft/sec

Flow Measurement 11/9/04 PJS/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
3.2	0.2	0.0	0.00	0.0	0.00
3.5	0.4	1.3	0.02	0.5	0.01
4.0	0.5	1.4	0.04	0.7	0.03
4.5	0.5	1.5	0.06	0.8	0.05
5.0	0.5	1.6	0.06	0.8	0.05
5.5	0.5	1.6	0.06	0.8	0.05
6.0	0.5	1.6	0.03	0.8	0.02
6.5	0.5	1.5	0.06	0.8	0.05
7.0	0.5	1.2	0.04	0.6	0.02
7.5	0.5	1.1	0.03	0.6	0.02
8.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **0.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/9/04
Weather:	Breezy, overcast, ~30°s F	**Sampler(s):**	PJS
Location:	STRM002	**Sampling time:**	1230
Sample ID:	STRMS002		
KEX ID:	EAG-1001268		
		Temperature (^{o}C)	2.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C)	57
Appearance:	Some tannin, yellow	Conductivity (μmhos)	32
		pH (SU)	7.3
		D.O. (ppm)	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: m/s

Flow Measurement 11/8/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.5	0.5	0.0	0.00	0.00	0.0	0.00
1.0	0.5	0.4	0.02	0.07	0.2	0.01
1.5	0.5	0.7	0.12	0.39	0.4	0.14
2.0	0.5	0.7	0.17	0.56	0.4	0.20
2.5	0.5	0.8	0.30	0.98	0.4	0.39
3.0	0.5	0.8	0.34	1.12	0.4	0.45
3.5	0.5	0.8	0.28	0.92	0.4	0.37
4.0	0.5	0.6	0.08	0.26	0.3	0.08
4.5	0.5	0.4	0.02	0.07	0.2	0.01
5.0	0.5	0.0	0.00	0.00	0.0	0.00

Total Flow: **1.6**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/9/04
Weather:	Breezy, overcast, ~30°s F	**Sampler(s):**	PJS
Location:	STRM003	**Sampling time:**	1030
Sample ID:	STRMS003		
KEX ID:	EAG-1001269		
		Temperature (^{o}C)	1.9
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C)	96
Appearance:	Slight yellow cast	Conductivity (µmhos)	52
		pH (SU)	7.8
		D.O. (ppm)	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/s

Flow Measurement 11/8/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	1.5	0.7	0.53	1.1	0.56
3.0	0.8	1.0	0.89	0.8	0.67
3.5	0.5	1.0	0.84	0.5	0.42
4.0	0.5	1.0	0.84	0.5	0.42
4.5	0.5	0.9	0.87	0.5	0.39
5.0	0.5	0.7	0.94	0.4	0.33
5.5	0.5	0.7	0.95	0.4	0.33
6.0	0.5	0.6	0.94	0.3	0.28
6.5	0.5	0.6	0.99	0.3	0.30
7.0	0.5	0.6	0.94	0.3	0.28
7.5	0.5	0.6	1.06	0.3	0.32
8.0	0.5	0.6	0.94	0.3	0.28
8.5	0.5	0.6	0.95	0.3	0.29
9.0	0.5	0.7	0.87	0.4	0.30
9.5	0.5	0.7	0.87	0.4	0.30
10.0	0.5	0.7	0.36	0.4	0.13
10.5	0.8	0.7	0.14	0.5	0.07
11.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **5.7**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/10/04
Weather:	Light rain, cloudy, ~40°s F	**Sampler(s):**	DWW/RRE
Location:	STRE006	**Sampling time:**	1215
Sample ID:	STRES006		
KEX ID:	EAG-1001270		
		Temperature (^{o}C)	6.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C)	131
Appearance:	Clear, no sediment	Conductivity (μmhos)	85
		pH (SU)	7.8
		D.O. (ppm)	NM

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 11/10/04 RRE/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.2	0.2	0.0	0.00	0.0	0.00
0.6	0.4	0.2	0.02	0.1	0.00
1.0	0.3	0.2	0.08	0.1	0.00
1.2	0.2	0.2	0.36	0.0	0.01
1.4	0.2	0.3	0.53	0.1	0.03
1.6	0.2	0.3	0.65	0.1	0.04
1.8	0.2	0.3	0.43	0.1	0.03
2.0	0.2	0.4	0.24	0.1	0.02
2.2	0.2	0.4	0.16	0.1	0.01
2.4	0.3	0.3	0.01	0.1	0.00
2.8	0.2	0.1	0.00	0.0	0.00

Total Flow: **0.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name: Eagle BES
Weather: Breezy, overcast, ~30°s F
Location: YDRM002
Sample ID: YDRMS002
KEX ID: EAG-1001271

Date: 11/9/04
Sampler(s): PJS
Sampling time: 1300

Odor: None
Appearance: Tannin stained

Temperature (^{0}C) 1.7
Spec. Cond. (µmhos/cm @ 25°C) 54
Conductivity (µmhos) 29
pH (SU) 7.0
D.O. (ppm) 9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes
Remarks: RP = 2.58'.

Meter units: m/sec

Flow Measurement 11/8/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.00	0.0	0.00
1.0	1.0	0.2	0.04	0.13	0.2	0.03
2.0	0.8	0.9	0.30	0.98	0.7	0.66
2.5	0.5	1.0	0.32	1.05	0.5	0.52
3.0	0.5	1.3	0.49	1.61	0.7	1.04
3.5	0.5	1.7	0.37	1.21	0.9	1.03
4.0	0.5	1.7	0.57	1.87	0.9	1.59
4.5	0.5	1.7	0.57	1.87	0.9	1.59
5.0	0.5	1.8	0.56	1.84	0.9	1.65
5.5	0.5	1.8	0.53	1.74	0.9	1.56
6.0	0.5	1.9	0.55	1.80	1.0	1.71
6.5	0.5	1.9	0.53	1.74	1.0	1.65
7.0	0.5	1.9	0.53	1.74	1.0	1.65
7.5	0.5	1.9	0.52	1.71	1.0	1.62
8.0	0.5	1.6	0.57	1.87	0.8	1.50
8.5	0.5	1.6	0.44	1.44	0.8	1.15
9.0	0.8	1.2	0.36	1.18	0.9	1.06
10.0	1.0	0.7	0.13	0.43	0.7	0.30
11.0	1.0	0.4	0.03	0.10	0.4	0.04
12.0	0.5	0.0	0.00	0.00	0.0	0.00

Total Flow: 20

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	11/9/04
Weather:	Breezy, overcast, ~30°s F	**Sampler(s):**	PJS
Location:	CDRM004	**Sampling time:**	1115
Sample ID:	CDRMS004		
KEX ID:	EAG-1001272		
		Temperature (°C)	2.6
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C)	134
Appearance:	Very slight yellow	Conductivity (µmhos)	76
	cast	pH (SU)	7.8
		D.O. (ppm)	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	2	1000 ml plastic	Ice	Various
Red stripe	1	250 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: Yes

Remarks:

Meter units: ft/sec

Flow Measurement 11/8/04 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	1.0	0.36	1.0	0.36
2.0	1.0	1.5	0.29	1.5	0.44
3.0	1.0	1.5	0.32	1.5	0.48
4.0	0.9	1.8	0.62	1.6	1.00
4.8	0.8	1.9	0.73	1.5	1.11
5.6	0.8	1.9	0.75	1.5	1.14
6.4	0.8	1.9	0.75	1.5	1.14
7.2	0.8	1.9	0.68	1.5	1.03
8.0	0.8	1.9	0.72	1.5	1.09
8.8	0.8	1.9	0.76	1.5	1.16
9.6	0.8	1.8	0.73	1.4	1.05
10.4	0.8	2.0	0.61	1.6	0.98
11.2	0.8	1.7	0.64	1.4	0.87
12.0	0.9	1.6	0.26	1.4	0.37
13.0	1.0	1.2	0.13	1.2	0.16
14.0	1.0	0.5	0.04	0.5	0.02
15.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **12**

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
420 Rail Street, P.O. Box 30
Negaunee, Michigan 49866
Phone (906) 475-9739

Summary of Sampling Activities

Sampling Date(s): 12/14/04, 12/15/04, and 12/28/04

Activities: Collected surface water samples from the Salmon Trout (STRM002, STRM004, and STRE002), Yellow Dog (YDRM002) and Cedar Creek (CDRM004) monitoring locations.

Completed 2 flow measurements at STRM002 and CDRM004 on 12/14/04.

Collected groundwater samples at QAL004A/D, QAL005A/D, QAL006A/B, QAL008A/D, and QAL009A/D.

Collected duplicate, field blank and equipment blank samples.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	2
Water Sampling Log	15
Chain of Custody Numbers	00066, 105589, 105643

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry

Sampler Name(s): Peter Sabee (PJS), Kari Paulson (KMP) and Dan Wiitala (DWW)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM002	STRMS002	EAG-1001319	12/14/04	0.4	58	6.9	0.4
STRM004	STRMS004	EAG-1001320	12/14/04	0.1	93	6.9	9
STRE002	STRES002	EAG-1001321	12/14/04	0.1	126	7.7	8
YDRM002	YDRMS002	EAG-1001322	12/14/04	0.0	57	7.0	9
CDRM004	CDRMS004	EAG-1001323	12/14/04	0.9	129	7.7	8

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM002	12/14/04	1.8
CDRM004	12/14/04	13

North Jackson Company
Groundwater Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (µmhos/cm @ 25°C)	pH (SU)	DO (ppm)	Ferrous Iron (mg/L)
QAL004A	QALM004A	EAG-1001327	12/15/04	7.0	91	9.1	6	<0.1
QAL004D	QALM004D	EAG-1001328	12/15/04	7.4	154	8.5	0.002	0.1
QAL005A	QALM005A	EAG-1001329	12/15/04	7.9	17	5.5	2	0.4
QAL005D	QALM005D	EAG-1001330	12/15/04	7.6	166	8.0	<0.001	0.7
QAL006A	QALM006A	EAG-1001331	12/28/04	8.1	15	5.4	3	<0.1
QAL006B	QALM006B	EAG-1001332	12/28/04	7.9	172	6.9	<0.05	16
QAL008A	QALM008A	EAG-1001333	12/28/04	5.8	64	9.1	NM	NM
QAL008D	QALM008D	EAG-1001334	12/28/04	7.3	121	8.0	NM	NM
QAL009A	QALM009A	EAG-1001335	12/28/04	5.4	101	8.8	NM	NM
QAL009D	QALM009D	EAG-1001336	12/28/04	5.6	132	8.1	NM	NM

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/14/04
Weather:	Clear, calm, ~20°s F	**Sampler(s):**	DWW/PJS
Location:	STRM002	**Sampling time:**	1500
Sample ID:	STRMS002		
KEX ID:	EAG-1001319	Temperature (^{o}C):	0.4
		Spec. Cond. (μmhos/cm @ 25°C):	58
Odor:	None	Conductivity (μmhos):	29
Appearance:	Slight tannin staining	pH (SU):	6.9
		D.O. (ppm):	0.4

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Not much ice.

Meter units: ft/sec

Flow Measurement 12/14/04 DWW/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
-0.5	0.3	0.0	0.00	0.0	0.00
0.0	0.5	0.4	0.18	0.2	0.04
0.5	0.5	0.5	0.13	0.3	0.03
1.0	0.5	0.5	0.08	0.3	0.02
1.5	0.5	0.6	0.29	0.3	0.09
2.0	0.5	0.7	0.30	0.4	0.11
2.5	0.5	0.9	0.44	0.5	0.20
3.0	0.5	1.0	0.51	0.5	0.26
3.5	0.5	0.9	0.39	0.5	0.18
4.0	0.5	0.9	0.79	0.5	0.36
4.5	0.5	1.0	0.80	0.5	0.40
5.0	0.5	1.0	0.25	0.5	0.13
5.5	0.5	0.7	0.08	0.3	0.03
6.0	0.5	0.4	-0.17	0.2	-0.03
6.5	0.8	0.2	-0.19	0.2	-0.03
7.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **1.8**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/14/04
Weather:	Partly cloudy, breezy, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	STRM004	**Sampling time:**	1245
Sample ID:	STRMS004		
KEX ID:	EAG-1001320	Temperature (^{o}C):	0.1
		Spec. Cond. (μmhos/cm @ 25°C):	93
Odor:	None	Conductivity (μmhos):	47
Appearance:	Clear	pH (SU):	6.9
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Ice cover at stage station 100%.

No flow measurement.

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/14/04
Weather:	Light breeze, partly cloudy, ~20°s F	**Sampler(s):**	DWW/PJS
Location:	STRE002	**Sampling time:**	1230
Sample ID:	STRES002		
KEX ID:	EAG-1001321	Temperature (^{o}C):	0.1
		Spec. Cond. (μmhos/cm @ 25°C):	126
Odor:	None	Conductivity (μmhos):	63
Appearance:	Clear	pH (SU):	7.7
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: 0.5" ice on bank to ~2' in channel.

No flow measurement.

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/14/04
Weather:	Clear, sunny, warm, ~20°s F	**Sampler(s):**	DWW/PJS
Location:	YDRM002	**Sampling time:**	1545
Sample ID:	YDRMS002		
KEX ID:	EAG-1001322	Temperature (^{o}C):	0.0
		Spec. Cond. (μmhos/cm @ 25°C):	57
Odor:	None	Conductivity (μmhos):	29
Appearance:	Tannin stained	pH (SU):	7.0
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks: Masked Duplicate (DUPS001, EAG-1001324) collected here.

Mostly ice covered, sampled in open channel under bridge. No flow measurement.

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/14/04
Weather:	Snow flurries, breezy, ~20°s F	**Sampler(s):**	DWW/PJS
Location:	CDRM004	**Sampling time:**	1340
Sample ID:	CDRMS004		
KEX ID:	EAG-1001323	Temperature (^{o}C):	0.9
		Spec. Cond. (μmhos/cm @ 25°C):	129
Odor:	None	Conductivity (μmhos):	67
Appearance:	Clear	pH (SU):	7.7
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 12/14/04 DWW/PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
4.0	0.3	0.0	0.00	0.0	0.00
4.5	0.8	1.1	0.06	0.8	0.05
5.5	1.0	1.6	0.54	1.6	0.86
6.5	1.0	1.8	0.65	1.8	1.17
7.5	1.0	1.8	0.63	1.8	1.13
8.5	1.0	2.2	0.70	2.2	1.54
9.5	1.0	2.3	0.71	2.3	1.63
10.5	1.0	2.2	0.82	2.2	1.80
11.5	1.0	1.9	0.76	1.9	1.44
12.5	1.0	1.7	0.70	1.7	1.19
13.5	1.0	1.4	0.63	1.4	0.88
14.5	1.0	1.3	0.11	1.3	0.14
15.5	1.0	1.1	0.47	1.1	0.52
16.5	0.7	1.1	0.23	0.7	0.16
16.8	0.2	0.0	0.00	0.0	0.00

Total Flow: **13**

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/15/04
Weather:	Scattered clouds, ~30°s F	**Sampler(s):**	KMP/PJS
Location:	QAL004A	**Sampling time:**	1505
Sample ID:	QALM004A		
KEX ID:	EAG-1001327		

		Temperature (^{o}C):	7.0
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	91
Appearance:	Clear	Conductivity (µmhos):	58
		pH (SU):	9.1
		D.O. (ppm):	6
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	58	ft	Well diameter (in):	2
Approx. Depth to water:	26	ft		
Water column in well:	32	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~120
Well volume:	5	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1420	7.0	91	9.0	30
1435	7.0	91	9.1	60
1450	7.0	91	9.1	90

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/15/04
Weather:	Scattered clouds, ~30°s F	**Sampler(s):**	KMP/PJS
Location:	QAL004D	**Sampling time:**	1510
Sample ID:	QALM004D		
KEX ID:	EAG-1001328		
		Temperature (^{o}C):	7.4
Odor:	Slight hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	154
Appearance:	Clear	Conductivity (μmhos):	100
		pH (SU):	8.5
		D.O. (ppm):	0.002
		Ferrous Iron (mg/L):	0.1

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	17	ft		
Water column in well:	131	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~120
Well volume:	33	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1430	7.4	154	8.5	40
1445	7.4	154	8.5	70
1500	7.4	154	8.5	100

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/15/04
Weather:	Partly cloudy, ~30°s F	**Sampler(s):**	KMP/PJS
Location:	QAL005A	**Sampling time:**	1300
Sample ID:	QALM005A		
KEX ID:	EAG-1001329		
		Temperature (^{o}C):	7.9
Odor:	Slight hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	17
Appearance:	Clear	Conductivity (μmhos):	11
		pH (SU):	5.5
		D.O. (ppm):	1.5
		Ferrous Iron (mg/L):	0.4

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	6	ft		
Water column in well:	25	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~75
Well volume:	4	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~3 gpm. Well condition excellent.

Masked duplicate (DUPM001, EAG-1001337) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1248	7.9	17	5.5	39
1249	7.9	17	5.4	42
1250	7.9	17	5.4	45
1251	7.9	17	5.5	48

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/15/04
Weather:	Scattered clouds, ~30°s F	**Sampler(s):**	KMP/PJS
Location:	QAL005D	**Sampling time:**	1330
Sample ID:	QALM005D		
KEX ID:	EAG-1001330		

		Temperature (^{o}C):	7.6
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	166
Appearance:	Clear	Conductivity (µmhos):	111
		pH (SU):	8.0
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.7

Description of measuring point: Mark on PVC riser

Total depth:	130	ft	Well diameter (in):	2.5
Approx. Depth to water:	7	ft		
Water column in well:	123	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~110
Well volume:	31	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Masked duplicate (DUPM002, EAG-1001338) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1255	7.6	168	7.9	40
1310	7.6	167	8.0	70
1325	7.6	166	8.0	100

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/28/04
Weather:	Cloudy, windy, ~30°s F	**Sampler(s):**	DWW
Location:	QAL006A	**Sampling time:**	1440
Sample ID:	QALM006A		
KEX ID:	EAG-1001331		
		Temperature (^{o}C):	8.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	15
Appearance:	Clear	Conductivity (µmhos):	10
		pH (SU):	5.4
		D.O. (ppm):	3
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	10	ft		
Water column in well:	18	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~12
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.75 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1428	8.0	16	5.8	3
1432	8.1	16	5.6	6
1436	8.1	15	5.4	9
1440	8.1	15	5.4	12

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/28/04
Weather:	Cloudy, windy, ~30°s F	**Sampler(s):**	DWW
Location:	QAL006B	**Sampling time:**	1530
Sample ID:	QALM006B		
KEX ID:	EAG-1001332		

		Temperature (^{o}C):	7.9
Odor:	Slight hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	172
Appearance:	Slight yellow tint	Conductivity (μmhos):	116
		pH (SU):	6.9
		D.O. (ppm):	<0.05
		Ferrous Iron (mg/L):	16

Description of measuring point: Mark on PVC riser

Total depth:	83	ft	Well diameter (in):	2.5
Approx. Depth to water:	24	ft		
Water column in well:	59	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~55
Well volume:	15	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	None	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (mmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1510	7.6	168	6.5	15
1517	7.9	171	6.8	29
1524	7.9	172	6.9	43

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/28/04
Weather:	Overcast, breezy, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	QAL008A	**Sampling time:**	1145
Sample ID:	QALM008A		
KEX ID:	EAG-1001333		
		Temperature (^{o}C):	5.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	64
Appearance:	Clear	Conductivity (μmhos):	40
		pH (SU):	9.1
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	93	ft	Well diameter (in):	2
Approx. Depth to water:	78	ft		
Water column in well:	15	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~9
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent.

Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/28/04
Weather:	Overcast, breezy, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	QAL008D	**Sampling time:**	1155
Sample ID:	QALM008D		
KEX ID:	EAG-1001334		

		Temperature (^{o}C):	7.3
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	121
Appearance:	Slight turbidity	Conductivity (μmhos):	80
		pH (SU):	8.0
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	123	ft	Well diameter (in):	2.5
Approx. Depth to water:	113	ft		
Water column in well:	10	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~9
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent.

Well dry at ~9 gal. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/28/04
Weather:	Overcast, windy, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	QAL009A	**Sampling time:**	1345
Sample ID:	QALM009A		
KEX ID:	EAG-1001335		

		Temperature (^{o}C):	5.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	101
Appearance:	Turbid	Conductivity (μmhos):	63
		pH (SU):	8.8
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	113	ft	Well diameter (in):	2
Approx. Depth to water:	102	ft		
Water column in well:	11	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~3
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent.

Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	12/28/04
Weather:	Cloudy, windy, ~30°s F	**Sampler(s):**	DWW/PJS
Location:	QAL009D	**Sampling time:**	1555
Sample ID:	QALM009D		
KEX ID:	EAG-1001336		
		Temperature (^{o}C):	5.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	132
Appearance:	Clear	Conductivity (μmhos):	83
		pH (SU):	8.1
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	103	ft		
Water column in well:	45	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~27
Well volume:	11	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent

Bailed so no stabilization record.

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
1004 Harbor Hills Drive, Suite 102
Marquette, Michigan 49855
Phone (906) 225-6787

Summary of Sampling Activities

Sampling Date(s):	2/15/05, 2/16/05, 2/21/05, 2/22/05, 2/23/05, 2/24/05, 2/25/05, 3/1/05, 3/2/05, and 3/3/05
Activities:	Collected surface water samples from the Salmon Trout (STRM001, STRM002, STRM003, STRM004, STRM005, STRW001, STRE001, STRE002, and STRE006), Yellow Dog (YDRM002 and YDRM003), and Cedar Creek (CDRA002 and CDRM004) monitoring locations.
	Completed 13 flow measurements at above locations on 2/15/05, 2/16/05, 2/21/05 and 3/10/05.
	Collected groundwater samples at QAL001A/D, QAL002A/D, QAL003A/B, QAL004A/D, QAL005A/D, QAL006A/B, QAL007A/D, QAL008A/D, QAL009A/D, QAL010A, QAL015, QAL016, QAL018, QAL020, WLD001, WLD006, WLD016, and WLD021.
	Collected duplicate, field blank and equipment blank samples.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	13
Water Sampling Log	40
Chain of Custody Numbers	105590, 103795, 105591, 103794, 098626, 098624, 104844, 105682, 00077, 103796, 105681, 105592

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry
Illinois State Geological Survey - Tritium

Sampler Name(s): Dan Wiitala (DWW), Pete Kero (PMK), Peter Sabee (PJS), Kari Paulson (KMP), and Richard Eagle (RRE)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STRMS001	EAG-1001343	2/21/05	0.2	42	6.6	4.5
STRM002	STRMS002	EAG-1001344	2/16/05	0.4	62	7.1	7
STRM003	STRMS003	EAG-1001345	2/15/05	1.1	90	7.9	10
STRM004	STRMS004	EAG-1001346	2/15/05	0.9	98	7.8	10
STRM005	STRMS005	EAG-1001347	2/24/05	0.0	133	7.7	10
STRW001	STRWS001	EAG-1001348	2/15/05	0.5	107	7.5	9
STRE001	STRES001	EAG-1001349	2/15/05	2.1	125	7.9	8
STRE002	STRES002	EAG-1001350	2/21/05	0.2	133	8.0	10
STRE006	STRES006	EAG-1001361	2/21/05	3.3	133	8.1	9
YDRM002	YDRMS002	EAG-1001351	2/16/05	0.3	59	6.9	NM
YDRM003	YDRMS003	EAG-1001352	2/16/05	0.2	53	7.0	9
CDRA002	CDRAS002	EAG-1001353	2/15/05	4.2	97	8.0	10
CDRM004	CDRMS004	EAG-1001354	2/15/05	1.5	132	7.8	8

NM Not measured

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	2/21/05	0.8
STRM002	2/16/05	1.3
STRM003	2/15/05	5.2
STRM004	2/15/05	6.3
STRM005	3/10/05	37
STRW001	2/15/05	4.9
STRE001	2/15/05	13
STRE002	2/21/05	18
STRE006	2/21/05	0.1
YDRM002	2/16/05	17
YDRM003	2/16/05	14
CDRA002	2/15/05	1.7
CDRM004	2/15/05	14

North Jackson Company
Groundwater Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (µmhos/cm @ 25°C)	pH (SU)	DO (ppm)	Ferrous Iron (mg/L)
QAL001A	QALM001A	EAG-1001366	3/2/05	7.6	103	NM	NM	<0.1
QAL001D	QALM001D	EAG-1001367	3/2/05	7.3	153	NM	0.01	<0.1
QAL002A	QALM002A	EAG-1001368	3/3/05	6.5	64	NM	NM	NM
QAL002D	QALM002D	EAG-1001369	3/3/05	6.3	227	NM	NM	NM
QAL003A	QALM003A	EAG-1001370	3/1/05	8.1	140	NM	7	0.1
QAL003B	QALM003B	EAG-1001371	3/1/05	7.4	156	NM	<0.001	0.2
QAL004A	QALM004A	EAG-1001372	2/24/05	7.2	84	9.1	5	<0.1
QAL004D	QALM004D	EAG-1001373	2/25/05	7.3	151	8.5	<0.001	0.2
QAL005A	QALM005A	EAG-1001374	2/24/05	7.2	17	5.5	2	0.2
QAL005D	QALM005D	EAG-1001375	2/23/05	7.5	165	8.0	<0.001	1.0
QAL006A	QALM006A	EAG-1001376	2/22/05	7.1	18	5.3	2	<0.1
QAL006B	QALM006B	EAG-1001377	2/22/05	7.9	169	7.0	<0.001	27
QAL007A	QALM007A	EAG-1001378	3/1/05	7.1	44	7.0	7	<0.1
QAL007D	QALM007D	EAG-1001379	3/1/05	7.4	179	NM	<0.001	1.5
QAL008A	QALM008A	EAG-1001380	2/25/05	6.4	65	9.2	NM	NM
QAL008D	QALM008D	EAG-1001381	2/25/05	6.2	107	8.3	NM	NM
QAL009A	QALM009A	EAG-1001382	2/25/05	5.8	93	9.1	NM	NM
QAL009D	QALM009D	EAG-1001383	2/25/05	5.2	134	8.5	NM	NM
QAL010A	QALM010A	EAG-1001384	2/23/05	7.3	82	8.7	4	<0.1
QAL015	QALP015	EAG-1001385	3/1/05	5.0	116	NM	7	<0.1
QAL016	QALP016	EAG-1001386	2/23/05	NM	NM	NM	NM	NM
QAL018	QALP018	EAG-1001387	3/2/05	5.5	168	NM	7	0.2
QAL020	QALP020	EAG-1001388	2/23/05	NM	NM	NM	NM	NM
WLD001	WLDP001	EAG-1001362	2/22/05	3.9	155	7.0	NM	1.0
WLD006	WLDP006	EAG-1001363	2/22/05	3.2	35	6.0	<0.001	10
WLD016	WLDP016	EAG-1001364	2/22/05	4.6	164	8.4	1	0.3
WLD021	WLDP021	EAG-1001365	2/22/05	3.6	29	5.6	1	0.8

NM Not measured

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
WLD001	3/15/05	1430.41	1.61	8	1428.80
WLD002	3/15/05	1433.12	2.45	8	1430.67
WLD003	3/15/05	1435.66	2.04	8	1433.62
WLD004	3/15/05	1448.91	2.70	8	1446.21
WLD005	3/15/05	1453.50	2.56	8	1450.94
WLD006	3/15/05	1459.29	4.32	8	1454.97
WLD007	3/15/05	1453.70	3.50	8	1450.20
WLD008	3/15/05	1456.60	3.20	8	1453.40
WLD009	3/15/05	1460.17	3.35	8	1456.82
WLD010	3/15/05	1450.90	3.67	8	1447.23
WLD011	3/15/05	1449.51	3.54	8	1445.97
WLD012	3/15/05	1448.60	2.6 F	8	1446.0
WLD013	3/15/05	1447.81	3.0 F	8	1444.8
WLD014	3/15/05	1443.47	2.23	8	1441.24
WLD015	3/15/05	1431.28	2.37	8	1428.91
WLD016	3/15/05	1432.34	3.94	8	1428.40
WLD017	3/15/05	1427.70	4.41	8	1423.29
WLD018	3/15/05	1427.34	4.31	8	1423.03
WLD019	3/15/05	1424.93	4.46	8	1420.47
WLD020	3/15/05	1424.13	4.17	8	1419.96
WLD021	3/15/05	1420.58	5.39	8	1415.19
WLD022	3/15/05	1425.66	2.55	8	1423.11
WLD023	3/15/05	1416.42	2.82	8	1413.60

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
QAL001A	3/15/05	1462.92	50.92	65	1412.00
QAL001D	3/15/05	1462.81	56.34	85	1406.47
QAL002A	3/15/05	1479.54	46.19	60	1433.35
QAL002D	3/15/05	1479.21	83.91	140	1395.30
QAL003A	3/15/05	1436.95	11.80	30	1425.15
QAL003B	3/15/05	1436.48	24.03	50	1412.45
QAL004A	3/15/05	1451.09	26.47	55	1424.62
QAL004D	3/15/05	1450.94	17.22	145	1433.72
QAL005A	3/15/05	1459.74	6.40	25	1453.34
QAL005D	3/15/05	1459.59	7.24	128	1452.35
QAL006A	3/15/05	1423.92	9.9	25	1414.0
QAL006B	3/15/05	1424.33	25.6	83	1398.8
QAL007A	3/15/05	1479.34	50.60	58	1428.74
QAL007D	3/15/05	1479.45	42.34	185	1437.11
QAL008A	3/15/05	1468.19	78.60	94	1389.59
QAL008D	3/15/05	1467.92	114.20	125	1353.72
QAL009A	3/15/05	1457.41	102.84	114	1354.57
QAL009D	3/15/05	1457.35	102.88	151	1354.47
QAL0010A	3/15/05	1444.55	21.78	51	1422.77
QAL015	3/15/05	1296.09	3.19	7	1292.90
QAL016	3/15/05	1275.73	2.00	7	1273.73
QAL017	3/15/05	1255.39	3.99	7	1251.40
QAL018	3/15/05	1253.47	3.1 F	11	1250.4
QAL019	3/15/05	1288.68	3.33	7	1285.35
QAL020	3/15/05	1338.7	2.6 F	7	1336.1
QAL021	3/15/05	1392.19	2.97	7	1389.22
QAL022	3/15/05	1300.95	2.55	7	1298.40
QAL023	NM	1421.39	NM	34	NM
YDRM002	3/15/05	1415.12	2.79	NA	1412.33
STRM002	3/15/05	1400.09	3.1	NA	1403.2

NM Not measured
NA Not applicable
F Estimated depth. Water frozen.

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/21/05
Weather:	Flurries, cloudy, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	STRM001	**Sampling time:**	1145
Sample ID:	STRMS001		
KEX ID:	EAG-1001343		
		Temperature (^{o}C):	0.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	42
Appearance:	Tannin stained, slight	Conductivity (μmhos):	21
	yellow, slight sediment	pH (SU):	6.6
		D.O. (ppm):	4.5

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 100% thin ice cover, slushy.

Meter units: ft/sec

Flow Measurement 2/21/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Effective Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.7	0.02	0.4	0.01
1.0	0.8	1.7	0.08	1.3	0.09
1.5	0.8	1.7	0.16	1.3	0.19
2.5	1.5	1.8	0.13	2.7	0.32
4.5	1.5	1.8	0.04	2.7	0.10
5.5	1.0	0.8	0.08	0.8	0.06
6.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **0.8**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/16/05
Weather:	Overcast, light breeze, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	STRM002	**Sampling time:**	1600
Sample ID:	STRMS002		
KEX ID:	EAG-1001344		
		Temperature (^{o}C):	0.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	62
Appearance:	Slight tannin	Conductivity (μmhos):	32
		pH (SU):	7.1
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 0% ice cover at sampling and gage.

Meter units: m/sec

Flow Measurement 2/16/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.6	0.03	0.10	0.2	0.01
0.5	0.5	0.5	0.01	0.03	0.3	0.01
1.0	0.5	0.5	0.05	0.16	0.3	0.04
1.5	0.5	0.8	0.07	0.23	0.4	0.09
2.0	0.5	0.9	0.21	0.69	0.5	0.31
2.5	0.5	0.9	0.08	0.26	0.5	0.12
3.0	0.5	1.0	0.15	0.49	0.5	0.25
3.5	0.5	1.0	0.21	0.69	0.5	0.34
4.0	0.5	0.9	0.09	0.29	0.5	0.13
4.5	0.5	0.8	0.03	0.10	0.4	0.04
5.0	1.0	0.7	-0.01	-0.03	0.7	-0.02
6.5	1.5	0.2	-0.02	-0.07	0.3	-0.02
8.0	0.8	0.0	0.00	0.00	0.0	0.00

Total Flow: **1.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/15/05
Weather:	Overcast, windy, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	STRM003	**Sampling time:**	1450
Sample ID:	STRMS003		
KEX ID:	EAG-1001345		
		Temperature (^{o}C):	1.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	90
Appearance:	Clear, slight yellow	Conductivity (µmhos):	47
		pH (SU):	7.9
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 0-50% ice (although water level < ice level).

Meter units: m/sec

Flow Measurement 2/15/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.2	0.00	0.00	0.1	0.00
1.0	1.0	0.5	-0.01	-0.03	0.5	-0.02
2.0	1.0	0.8	0.00	0.00	0.8	0.00
3.0	1.0	0.8	0.03	0.10	0.8	0.08
4.0	1.0	0.7	0.12	0.39	0.7	0.28
5.0	1.0	0.7	0.20	0.66	0.7	0.46
6.0	1.0	0.7	0.23	0.75	0.7	0.53
7.0	0.8	0.7	0.24	0.79	0.5	0.41
7.5	0.5	0.7	0.27	0.89	0.4	0.31
8.0	0.5	0.7	0.27	0.89	0.4	0.31
8.5	0.5	0.7	0.28	0.92	0.3	0.30
9.0	0.5	0.7	0.30	0.98	0.4	0.34
9.5	0.5	0.7	0.29	0.95	0.4	0.33
10.0	0.8	0.8	0.24	0.79	0.6	0.44
11.0	1.0	0.8	0.21	0.69	0.8	0.52
12.0	1.0	0.9	0.19	0.62	0.9	0.56
13.0	1.0	0.9	0.10	0.33	0.9	0.28
14.0	0.8	0.8	0.06	0.20	0.6	0.11
14.5	0.3	0.0	0.00	0.00	0.0	0.00

Total Flow: **5.2**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/15/05
Weather:	Overcast, windy, snow ~20°s F	**Sampler(s):**	PJS/DWW
Location:	STRM004	**Sampling time:**	1340
Sample ID:	STRMS004		
KEX ID:	EAG-1001346		
		Temperature (^{o}C):	0.9
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	98
Appearance:	Clear	Conductivity (μmhos):	51
		pH (SU):	7.8
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 10% ice cover of width on banks, ice not touching flow.

RP = 3.65'.

Meter units: m/sec

Flow Measurement 2/15/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.5	0.01	0.03	0.3	0.01
1.0	1.0	0.6	0.01	0.03	0.6	0.02
2.0	1.0	1.0	0.08	0.26	1.0	0.26
3.0	1.0	1.0	0.14	0.46	1.0	0.46
4.0	1.0	1.0	0.17	0.56	1.0	0.56
5.0	0.8	1.1	0.12	0.39	0.8	0.32
5.5	0.5	1.4	0.16	0.52	0.7	0.37
6.0	0.5	1.5	0.21	0.69	0.8	0.52
6.5	0.5	1.5	0.26	0.85	0.8	0.64
7.0	0.5	1.4	0.27	0.89	0.7	0.62
7.5	0.5	1.6	0.24	0.79	0.8	0.61
8.0	0.5	1.5	0.25	0.82	0.8	0.62
8.5	0.8	1.5	0.18	0.59	1.1	0.64
9.5	1.5	1.3	0.06	0.20	2.0	0.38
11.5	1.8	0.7	0.06	0.20	1.2	0.24
13.0	0.8	0.0	0.00	0.00	0.0	0.00

Total Flow: 6.3

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/24/05
Weather:	Partly cloudy, calm, ~10°s F	**Sampler(s):**	DWW/PMK
Location:	STRM005	**Sampling time:**	0910
Sample ID:	STRMS005		
KEX ID:	EAG-1001347		
		Temperature (^{o}C):	0.0
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	133
Appearance:	Clear	Conductivity (μmhos):	67
	No sediment	pH (SU):	7.7
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 100% ice cover, ~15" thick.

RP = 3.10'.

Meter units: ft/sec

Flow Measurement 3/10/05 PJS/RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Effective Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	3.0	1.0	0.71	3.0	1.96
6.0	4.0	1.2	1.15	4.8	5.08
10.0	4.0	1.2	1.03	4.8	4.55
14.0	4.0	1.0	1.10	4.0	4.05
18.0	4.0	1.1	1.18	4.4	4.78
22.0	4.0	1.3	1.26	5.2	6.03
26.0	4.0	1.4	1.10	5.6	5.67
30.0	4.0	1.1	0.93	4.4	3.76
34.0	4.0	0.4	0.55	1.6	0.81
38.0	2.0	0.0	0.00	0.0	0.00

Total Flow: **37**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/15/05
Weather:	Overcast, windy, snow, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	STRW001	**Sampling time:**	1150
Sample ID:	STRWS001		
KEX ID:	EAG-1001348		
		Temperature (^{o}C):	0.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	107
Appearance:	Clear	Conductivity (µmhos):	55
		pH (SU):	7.5
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 20% ice on banks, above water level.

Masked duplicate (DUPS001, EAG-1001355) collected here.

Meter units: m/sec

Flow Measurement 2/15/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.8	0.1	0.0	0.00	0.00	0.0	0.00
2.0	0.4	0.4	0.00	0.00	0.1	0.00
2.5	0.5	0.4	0.02	0.07	0.2	0.01
3.0	0.5	0.9	0.07	0.23	0.5	0.10
3.5	0.5	0.9	0.07	0.23	0.5	0.10
4.0	0.5	1.2	0.11	0.36	0.6	0.21
4.5	0.5	1.2	0.14	0.46	0.6	0.26
5.0	0.5	1.6	0.20	0.66	0.8	0.52
5.5	0.5	1.3	0.22	0.72	0.6	0.45
6.0	0.5	1.7	0.21	0.69	0.9	0.59
6.5	0.5	1.7	0.23	0.75	0.9	0.64
7.0	0.5	1.6	0.20	0.66	0.8	0.51
7.5	0.5	1.3	0.24	0.79	0.7	0.51
8.0	0.5	1.4	0.22	0.72	0.7	0.49
8.5	0.5	1.2	0.18	0.59	0.6	0.35
9.0	0.4	0.8	0.12	0.39	0.3	0.11
9.2	0.1	0.8	0.00	0.00	0.1	0.00

Total Flow: **4.9**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/15/05
Weather:	Overcast, windy, snow, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	STRE001	**Sampling time:**	1540
Sample ID:	STRES001		
KEX ID:	EAG-1001349		
		Temperature (^{o}C):	2.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	125
Appearance:	Very slight yellow, few particles	Conductivity (μmhos):	71
		pH (SU):	7.9
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: Ice free.

Meter units: m/sec

Flow Measurement 2/15/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.00	0.0	0.00
1.0	1.5	0.3	0.20	0.66	0.5	0.30
3.0	2.0	0.5	0.16	0.52	1.0	0.52
5.0	1.5	0.9	0.26	0.85	1.4	1.15
6.0	1.0	0.8	0.18	0.59	0.8	0.47
7.0	1.0	0.8	0.36	1.18	0.8	0.94
8.0	1.0	0.7	0.27	0.89	0.7	0.62
9.0	1.0	0.7	0.37	1.21	0.7	0.85
10.0	1.0	0.8	0.31	1.02	0.8	0.81
11.0	1.0	1.2	0.40	1.31	1.2	1.57
12.0	1.0	1.3	0.35	1.15	1.3	1.44
13.0	1.0	1.3	0.25	0.82	1.3	1.07
14.0	1.0	1.5	0.19	0.62	1.5	0.94
15.0	1.0	1.7	0.17	0.56	1.7	0.95
16.0	1.0	1.8	0.22	0.72	1.8	1.30
17.0	0.8	1.4	0.11	0.36	1.0	0.37
17.5	0.3	1.1	0.06	0.20	0.3	0.05

Total Flow: **13**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/21/05
Weather:	Overcast, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	STRE002	**Sampling time:**	1530
Sample ID:	STRES002		
KEX ID:	EAG-1001350		
		Temperature (°C):	0.2
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	133
Appearance:	Clear	Conductivity (µmhos):	67
		pH (SU):	8.0
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: Ice 50% cover at gage station; control point ice free. Cleared ice for flow measurement.

RP = 2.96'. Ice cover 100% at RP and monitoring equipment location.

Meter units: ft/sec

Flow Measurement 2/21/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	1.0	0.3	0.02	0.3	0.01
2.0	1.3	0.6	0.11	0.8	0.08
3.0	1.0	0.8	0.19	0.8	0.15
4.0	0.8	1.3	0.17	0.9	0.16
4.5	0.5	1.5	0.34	0.8	0.26
5.0	0.5	1.6	0.60	0.8	0.48
5.5	0.5	1.7	0.65	0.9	0.55
6.0	0.5	1.7	0.59	0.9	0.50
6.5	0.5	1.7	0.57	0.9	0.48
7.0	0.5	1.6	0.76	0.8	0.61
7.5	0.5	1.5	0.84	0.8	0.63
8.0	0.5	1.5	1.02	0.8	0.77
8.5	0.5	1.2	0.52	0.6	0.31
9.0	0.5	1.5	1.79	0.8	1.34
9.5	0.5	1.5	1.76	0.8	1.32
10.0	0.5	1.5	1.46	0.8	1.10
10.5	0.5	1.5	1.65	0.8	1.24
11.0	0.5	1.6	1.72	0.8	1.38
11.5	0.5	1.5	1.56	0.8	1.17
12.0	0.5	1.4	1.30	0.7	0.91
12.5	0.5	1.5	1.20	0.8	0.90
13.0	0.5	1.4	0.93	0.7	0.65
13.5	0.5	1.3	0.92	0.7	0.60
14.0	0.8	1.2	0.95	0.9	0.86
15.0	1.0	1.1	0.88	1.1	0.97
16.0	1.0	1.1	0.52	1.1	0.57
17.0	1.3	0.5	0.27	0.6	0.17
18.5	0.8	0.0	0.00	0.0	0.00

Total Flow: **18**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/21/05
Weather:	Overcast, light snow, breezy, ~20°s F	**Sampler(s):**	PJS
Location:	STRE006	**Sampling time:**	1400
Sample ID:	STRES006		
KEX ID:	EAG-1001361		
		Temperature (^{o}C):	3.3
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	133
Appearance:	Clear	Conductivity (μmhos):	78
		pH (SU):	8.1
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 100% ice free.

Meter units: ft/sec

Flow Measurement 2/21/05 PJS **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.1	0.0	0.00	0.0	0.00
0.3	0.3	0.3	0.20	0.1	0.01
0.5	0.3	0.3	0.48	0.1	0.03
0.8	0.3	0.3	0.36	0.1	0.02
1.0	0.3	0.3	0.48	0.1	0.04
1.3	0.3	0.3	0.33	0.1	0.02
1.5	0.3	0.3	0.05	0.1	0.00
1.8	0.3	0.3	-0.70	0.1	-0.04
2.0	0.3	0.2	0.02	0.1	0.00
2.3	0.1	0.2	0.00	0.0	0.00

Total Flow: **0.1**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/16/05
Weather:	Mostly sunny, breezy, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	YDRM002	**Sampling time:**	1400
Sample ID:	YDRMS002		
KEX ID:	EAG-1001351		
		Temperature (^{o}C):	0.3
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	59
Appearance:	Tannin stain	Conductivity (µmhos):	30
		pH (SU):	6.9
		D.O. (ppm):	NM

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 100% ice cover upstream of bridge and at RP; 0% at flow measurement location. RP = 2.69'.

Masked duplicate (DUPS002, EAG-1001356) collected here.

Meter units: m/sec

Flow Measurement 2/16/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.3	0.00	0.00	0.06	0.00
0.5	0.8	0.5	0.02	0.07	0.4	0.02
1.5	0.8	0.9	0.30	0.98	0.7	0.66
2.0	0.5	1.1	0.40	1.31	0.5	0.69
2.5	0.5	1.5	0.41	1.35	0.8	1.01
3.0	0.5	1.4	0.45	1.48	0.7	1.00
3.5	0.5	1.9	0.48	1.57	1.0	1.50
4.0	0.5	1.9	0.47	1.54	1.0	1.46
4.5	0.5	2.0	0.51	1.67	1.0	1.67
5.0	0.5	2.0	0.53	1.74	1.0	1.74
5.5	0.5	2.0	0.53	1.74	1.0	1.74
6.0	0.5	1.9	0.57	1.87	0.9	1.73
6.5	0.5	1.3	0.45	1.48	0.6	0.92
7.0	0.5	1.5	0.55	1.80	0.8	1.35
7.5	0.5	1.3	0.49	1.61	0.7	1.04
8.0	0.5	0.9	0.47	1.54	0.5	0.69
8.5	0.3	0.8	0.22	0.72	0.2	0.14
9.0	0.3	0.7	0.08	0.26	0.2	0.05
9.5	0.3	0.3	0.10	0.33	0.1	0.02
10.0	0.3	0.2	0.00	0.00	0.0	0.00
10.5	0.3	0.0	0.00	0.00	0.0	0.00

Total Flow: **17**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/16/05
Weather:	Partly sunny, breezy, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	YDRM003	**Sampling time:**	1100
Sample ID:	YDRMS003		
KEX ID:	EAG-1001352		
		Temperature (°C):	0.2
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	53
Appearance:	Tannin stain	Conductivity (µmhos):	27
		pH (SU):	7.0
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 100% thin ice cover (~0.1' thick).

Meter units: m/sec

Flow Measurement 2/16/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Effective Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.00	0.0	0.00
1.0	1.0	0.4	0.02	0.07	0.4	0.02
2.0	1.0	0.6	0.02	0.07	0.6	0.03
3.0	1.0	0.7	0.04	0.13	0.7	0.08
4.0	1.0	0.8	0.10	0.33	0.8	0.24
5.0	1.0	0.9	0.03	0.10	0.9	0.08
6.0	1.0	1.0	0.18	0.59	1.0	0.54
7.0	1.0	1.4	0.20	0.66	1.4	0.85
8.0	1.0	1.9	0.23	0.75	1.9	1.32
9.0	1.0	2.0	0.28	0.92	2.0	1.69
10.0	1.0	1.9	0.27	0.89	1.9	1.55
11.0	1.0	2.0	0.34	1.12	2.0	2.05
12.0	1.0	2.2	0.28	0.92	2.2	1.82
13.0	1.0	2.1	0.18	0.59	2.1	1.11
14.0	1.0	1.8	0.22	0.72	1.8	1.20
15.0	1.0	1.5	0.21	0.69	1.5	0.95
16.0	1.0	1.2	0.17	0.56	1.2	0.62
17.0	0.8	0.9	0.09	0.30	0.7	0.18
17.5	0.3	0.6	0.01	0.03	0.2	0.00

Total Flow: **14**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/15/05
Weather:	Overcast, windy, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	CDRA002	**Sampling time:**	0930
Sample ID:	CDRAS002		
KEX ID:	EAG-1001353		
		Temperature (^{o}C):	4.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	97
Appearance:	Clear	Conductivity (μmhos):	59
		pH (SU):	8.0
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: No ice cover.

Meter units: m/sec

Flow Measurement 2/15/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.00	0.0	0.00
0.5	0.5	0.4	0.49	1.61	0.2	0.32
1.0	0.5	0.5	0.70	2.30	0.3	0.57
1.5	0.5	0.4	0.70	2.30	0.2	0.46
2.0	0.5	0.3	0.62	2.03	0.2	0.31
2.5	0.5	0.2	0.09	0.30	0.1	0.03
3.0	0.5	0.3	0.01	0.03	0.2	0.00
3.5	0.3	0.0	0.00	0.00	0.0	0.00

Total Flow: **1.7**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/15/05
Weather:	Overcast, windy, snow, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	CDRM004	**Sampling time:**	1030
Sample ID:	CDRMS004		
KEX ID:	EAG-1001354		
		Temperature (^{o}C):	1.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	132
Appearance:	Clear	Conductivity (µmhos):	70
		pH (SU):	7.8
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: No ice.

Meter units: m/sec

Flow Measurement 2/15/05 PJS/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	1.25	0.06	0.20	0.6	0.12
1.0	1.0	1.15	0.09	0.30	1.2	0.34
2.0	1.0	1.20	0.18	0.59	1.2	0.71
3.0	1.0	1.40	0.24	0.79	1.4	1.10
4.0	1.0	1.55	0.28	0.92	1.6	1.42
5.0	1.0	1.50	0.30	0.98	1.5	1.48
6.0	1.0	1.55	0.30	0.98	1.6	1.53
7.0	1.0	1.50	0.30	0.98	1.5	1.48
8.0	1.0	1.60	0.29	0.95	1.6	1.52
9.0	1.0	1.70	0.28	0.92	1.7	1.56
10.0	1.0	1.50	0.30	0.98	1.5	1.48
11.0	0.8	1.40	0.26	0.85	1.1	0.90
11.5	0.5	1.20	0.24	0.79	0.6	0.47
12.0	0.5	1.15	0.11	0.36	0.6	0.21
12.5	0.5	0.80	-0.01	-0.03	0.4	-0.01
13.0	0.3	0.50	0.00	0.00	0.1	0.00

Total Flow: **14**

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/2/05
Weather:	Windy, ~10°s F	**Sampler(s):**	KMP/PJS
Location:	QAL001A	**Sampling time:**	1310
Sample ID:	QALM001A		
KEX ID:	EAG-1001366		

		Temperature (^{o}C):	7.6
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	103
Appearance:	Clear	Conductivity (µmhos):	68
		pH (SU):	NM
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	68	ft	Well diameter (in):	2
Approx. Depth to water:	52	ft		
Water column in well:	16	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~16
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.
pH probe not functioning.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1245	7.6	103	NM	4
1251	7.6	101	NM	7
1257	7.6	100	NM	10
1303	7.6	103	NM	13

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/2/05
Weather:	Windy, ~10°s F	**Sampler(s):**	KMP/PJS
Location:	QAL001D	**Sampling time:**	1512
Sample ID:	QALM001D		
KEX ID:	EAG-1001367		
		Temperature (°C):	7.3
Odor:	Slight hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	153
Appearance:	Cloudy	Conductivity (µmhos):	101
		pH (SU):	NM
		D.O. (ppm):	0.01
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	88	ft	Well diameter (in):	2.5
Approx. Depth to water:	53	ft		
Water column in well:	35	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~45
Well volume:	9	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.
pH probe not functioning.

Stabilization Record:

Time	Temp (°C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1435	7.3	154	NM	26
1453	7.3	154	NM	35
1512	7.3	153	NM	45

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/3/05
Weather:	Breezy, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	QAL002A	**Sampling time:**	1010
Sample ID:	QALM002A		
KEX ID:	EAG-1001368		

		Temperature (^{o}C):	6.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	64
Appearance:	Some sediment from bailing	Conductivity (µmhos):	41
		pH (SU):	NM
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	63	ft	Well diameter (in):	2
Approx. Depth to water:	45	ft		
Water column in well:	18	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~9
Well volume:	3	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Bail rate ~0.8 gpm. Well condition excellent.

Bailed so no stabilization record. pH probe not functioning.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/3/05
Weather:	Breezy, partly sunny, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	QAL002D	**Sampling time:**	1300
Sample ID:	QALM002D		
KEX ID:	EAG-1001369		

		Temperature (^{o}C):	6.3
Odor:	Slight hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	227
Appearance:	Some sediment from bailing	Conductivity (μmhos):	146
		pH (SU):	NM
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	143	ft	Well diameter (in):	2.5
Approx. Depth to water:	86	ft		
Water column in well:	57	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~25
Well volume:	15	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent.

Bailed so no stabilization record. Dry at ~25 gal. pH probe not functioning.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/1/05
Weather:	Heavy snow, ~high 20°s F	**Sampler(s):**	DWW/PJS
Location:	QAL003A	**Sampling time:**	1315
Sample ID:	QALM003A		
KEX ID:	EAG-1001370		

		Temperature (^{o}C):	8.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	140
Appearance:	Tan, silty	Conductivity (µmhos):	95
		pH (SU):	NM
		D.O. (ppm):	7
		Ferrous Iron (mg/L):	0.1

Description of measuring point: Mark on PVC riser

Total depth:	33	ft	Well diameter (in):	2
Approx. Depth to water:	11	ft		
Water column in well:	21	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~25
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

pH probe not functioning.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1256	7.9	126	NM	6
1310	8.2	140	NM	20
1315	8.1	140	NM	25

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/1/05
Weather:	Heavy snow, windy, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	QAL003B	**Sampling time:**	1330
Sample ID:	QALM003B		
KEX ID:	EAG-1001371		

		Temperature (^{o}C):	7.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	156
Appearance:	Clear	Conductivity (µmhos):	104
		pH (SU):	NM
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Mark on PVC riser

Total depth:	50	ft	Well diameter (in):	2.5
Approx. Depth to water:	24	ft		
Water column in well:	26	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~30
Well volume:	7	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.
pH probe not functioning.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1308	7.4	159	NM	8
1314	7.5	157	NM	14
1326	7.4	156	NM	26

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/24/05
Weather:	Sunny, ~30°s F	**Sampler(s):**	PMK/DWW
Location:	QAL004A	**Sampling time:**	1320
Sample ID:	QALM004A		
KEX ID:	EAG-1001372		
		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	84
Appearance:	Clear	Conductivity (µmhos):	55
		pH (SU):	9.1
		D.O. (ppm):	5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	58	ft	Well diameter (in):	2	
Approx. Depth to water:	26	ft			
Water column in well:	32	ft	Gallons purged		
Volume/foot:	0.16	gal/ft	prior to sampling:	~26	
Well volume:	5	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Date	Tag	# Collected	Bottle	Preservative	Parameter
	Green	1	1000 ml plastic	Ice	Various
	Red stripe	1	500 ml plastic	HNO3	Filtered metals
	None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1314	7.2	83	9.1	14
1318	7.0	84	9.1	22
1320	7.2	84	9.1	26

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/25/05
Weather:	Sunny, ~30°s F	**Sampler(s):**	PMK/DWW
Location:	QAL004D	**Sampling time:**	1054
Sample ID:	QALM004D		
KEX ID:	EAG-1001373		
		Temperature (^{o}C):	7.3
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	151
Appearance:	Clear	Conductivity (µmhos):	100
		pH (SU):	8.5
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5	
Approx. Depth to water:	17	ft			
Water column in well:	131	ft	Gallons purged		
Volume/foot:	0.26	gal/ft	prior to sampling:	~106	
Well volume:	33	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1010	7.3	150	8.5	40
1034	7.4	150	8.5	76
1054	7.3	151	8.5	106

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/24/05
Weather:	Partly sunny, ~20°s F	**Sampler(s):**	PMK/DWW
Location:	QAL005A	**Sampling time:**	1230
Sample ID:	QALM005A		
KEX ID:	EAG-1001374		
		Temperature (^{o}C):	7.2
Odor:	Slightly swampy	Spec. Cond. (µmhos/cm @ 25°C):	17
Appearance:	Clear	Conductivity (µmhos):	11
		pH (SU):	5.5
		D.O. (ppm):	2
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2	
Approx. Depth to water:	6	ft			
Water column in well:	22	ft	Gallons purged		
Volume/foot:	0.16	gal/ft	prior to sampling:	~22	
Well volume:	4	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Masked duplicate (DUPM002, EAG-1001390) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1225	7.1	17	5.6	12
1228	7.2	17	5.5	18
1230	7.2	17	5.5	22

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/23/05
Weather:	Partly sunny, ~20°s F	**Sampler(s):**	PMK
Location:	QAL005D	**Sampling time:**	1450
Sample ID:	QALM005D		
KEX ID:	EAG-1001375		

		Temperature (^{o}C):	7.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	165
Appearance:	Clear	Conductivity (µmhos):	110
		pH (SU):	8.0
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	1.0

Description of measuring point: Mark on PVC riser

Total depth:	130	ft	Well diameter (in):	2.5
Approx. Depth to water:	7	ft		
Water column in well:	123	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~98
Well volume:	31	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Masked duplicate (DUPM003, EAG-1001391) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1436	7.5	166	8.0	70
1441	7.5	166	8.0	80
1450	7.5	165	8.0	98

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/22/05
Weather:	Breezy, overcast, ~20°s F	**Sampler(s):**	PJS/PMK
Location:	QAL006A	**Sampling time:**	1040
Sample ID:	QALM006A		
KEX ID:	EAG-1001376		

		Temperature (^{o}C):	7.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	18
Appearance:	Clear	Conductivity (µmhos):	12
		pH (SU):	5.3
		D.O. (ppm):	2
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	10	ft		
Water column in well:	18	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~38
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1033	7.1	17	5.3	27
1037	7.1	18	5.3	33
1040	7.1	18	5.3	38

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/22/05
Weather:	Breezy, overcast, ~20°s F	**Sampler(s):**	PJS/PMK
Location:	QAL006B	**Sampling time:**	1115
Sample ID:	QALM006B		
KEX ID:	EAG-1001377		

		Temperature (^{o}C):	7.9
Odor:	Slight hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	169
Appearance:	Yellow cast	Conductivity (µmhos):	114
		pH (SU):	7.0
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	27

Description of measuring point: Mark on PVC riser

Total depth:	83	ft	Well diameter (in):	2.5
Approx. Depth to water:	24	ft		
Water column in well:	59	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~77
Well volume:	15	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1052	7.8	167	6.9	47
1102	7.9	167	6.9	62
1112	7.9	169	7.0	77

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/1/05
Weather:	Heavy snow, windy, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	QAL007A	**Sampling time:**	1050
Sample ID:	QALM007A		
KEX ID:	EAG-1001378		

		Temperature (^{o}C):	7.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	44
Appearance:	Clear	Conductivity (µmhos):	29
		pH (SU):	7.0
		D.O. (ppm):	7
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	59	ft	Well diameter (in):	2
Approx. Depth to water:	40	ft		
Water column in well:	19	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~32
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1040	7.1	44	7.1	12
1044	7.1	44	7.1	20
1048	7.1	44	7.1	28
1050	7.1	44	7.0	32

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/1/05
Weather:	Heavy snow, windy, ~20°s F	**Sampler(s):**	PJS/DWW
Location:	QAL007D	**Sampling time:**	1140
Sample ID:	QALM007D		
KEX ID:	EAG-1001379		

		Temperature (^{o}C):	7.4
Odor:	Slight iron	Spec. Cond. (µmhos/cm @ 25°C):	179
Appearance:	Clear, became slightly turbid	Conductivity (µmhos):	119
		pH (SU):	NM
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	1.5

Description of measuring point: Mark on PVC riser

Total depth:	183	ft	Well diameter (in):	2.5
Approx. Depth to water:	50	ft		
Water column in well:	133	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~100
Well volume:	34	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Pump rate ~1.5 gpm. Well protop removed by vandals but no damage to riser.
pH probe not functioning.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1057	7.2	213	NM	35
1120	7.3	182	NM	70
1140	7.4	179	NM	100

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/25/05
Weather:	Snowing, ~20°s F	**Sampler(s):**	DWW/PMK
Location:	QAL008A	**Sampling time:**	1215
Sample ID:	QALM008A		
KEX ID:	EAG-1001380		
		Temperature (^{o}C):	6.4
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	65
Appearance:	Turbid from bailing	Conductivity (μmhos):	42
		pH (SU):	9.2
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	93	ft	Well diameter (in):	2
Approx. Depth to water:	78	ft		
Water column in well:	15	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~7
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/25/05
Weather:	Snowing, ~20°s F	**Sampler(s):**	DWW/PMK
Location:	QAL008D	**Sampling time:**	1230
Sample ID:	QALM008D		
KEX ID:	EAG-1001381		
		Temperature (^{o}C):	6.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	107
Appearance:	Slight turbidity	Conductivity (μmhos):	68
		pH (SU):	8.3
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	123	ft	Well diameter (in):	2.5
Approx. Depth to water:	114	ft		
Water column in well:	9	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~7
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/25/05
Weather:	Snowing, ~20°s F	**Sampler(s):**	DWW
Location:	QAL009A	**Sampling time:**	1410
Sample ID:	QALM009A		
KEX ID:	EAG-1001382		

		Temperature (^{o}C):	5.8
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	93
Appearance:	Tan, turbid	Conductivity (μmhos):	58
		pH (SU):	9.1
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	113	ft	Well diameter (in):	2
Approx. Depth to water:	102	ft		
Water column in well:	11	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~7
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/25/05
Weather:	Snowing, ~20°s F	**Sampler(s):**	DWW/PMK
Location:	QAL009D	**Sampling time:**	1615
Sample ID:	QALM009D		
KEX ID:	EAG-1001383		
		Temperature (^{o}C):	5.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	134
Appearance:	Slightly turbid	Conductivity (μmhos):	83
		pH (SU):	8.5
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	103	ft		
Water column in well:	45	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~28
Well volume:	11	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent. Bailed so no stabilization record.

8.5 gal bailed 2/23/05 and 20 gal bailed on 2/25/05.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/23/05
Weather:	Partly sunny, flurries, ~20°s F	**Sampler(s):**	PMK
Location:	QAL010A	**Sampling time:**	1200
Sample ID:	QALM010A		
KEX ID:	EAG-1001384		
		Temperature (^{o}C):	7.3
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	82
Appearance:	Clear	Conductivity (µmhos):	55
		pH (SU):	8.7
		D.O. (ppm):	4
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	51	ft	Well diameter (in):	2	
Approx. Depth to water:	20	ft			
Water column in well:	31	ft	Gallons purged		
Volume/foot:	0.16	gal/ft	prior to sampling:	~60	
Well volume:	5	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1145	7.3	84	8.6	30
1150	7.3	83	8.7	40
1155	7.3	82	8.7	50
1200	7.3	82	8.7	60

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/1/05
Weather:	Heavy snow, windy, ~20°s F	**Sampler(s):**	DWW/PJS
Location:	QAL015	**Sampling time:**	1545
Sample ID:	QALP015		
KEX ID:	EAG-1001385		

		Temperature (^{o}C):	5.0
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	116
Appearance:	Clear	Conductivity (µmhos):	72
		pH (SU):	NM
		D.O. (ppm):	7.0
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	3	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~3
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.
pH probe not functioning.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1539	4.8	113	NM	0.5
1540	4.9	115	NM	1.0
1541	5.0	116	NM	1.5
1544	5.0	116	NM	2.0

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/23/05
Weather:	Cold, flurries, ~20°s F	**Sampler(s):**	PJS/KMP
Location:	QAL016	**Sampling time:**	1345
Sample ID:	QALP016		
KEX ID:	EAG-1001386		
		Temperature (^{o}C):	NM
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	NM
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	NM
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	1	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~6
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent. Masked duplicate (DUPP004, EAG-1001392) collected here. Water quality instrument not functioning so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	3/2/05
Weather:	Windy, ~10°s F	**Sampler(s):**	PJS/KMP
Location:	QAL018	**Sampling time:**	1600
Sample ID:	QALP018		
KEX ID:	EAG-1001387		

		Temperature (^{o}C):	5.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	168
Appearance:	Clear	Conductivity (µmhos):	106
		pH (SU):	NM
		D.O. (ppm):	7.0
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Top of stainless pipe

Total depth:	12	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	8	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~2.5
Well volume:	0.5	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

pH probe not functioning. Frozen.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1357	5.4	169	NM	1.75
1358	5.4	169	NM	2.0
1359	5.5	168	NM	2.25
1600	5.5	168	NM	2.5

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/23/05
Weather:	Partly sunny, ~20°s F	**Sampler(s):**	PJS/KMP
Location:	QAL020	**Sampling time:**	1500
Sample ID:	QALP020		
KEX ID:	EAG-1001388		
		Temperature (^{o}C):	NM
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	NM
Appearance:	Clear	Conductivity (μmhos):	NM
		pH (SU):	NM
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~5
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Water quality instrument not functioning so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/22/05
Weather:	Overcast, breezy, ~20°s F	**Sampler(s):**	PMK/PJS
Location:	WLD001	**Sampling time:**	1530
Sample ID:	WLDP001		
KEX ID:	EAG-1001362		

		Temperature (^{o}C):	3.9
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	155
Appearance:	Clear	Conductivity (µmhos):	92
		pH (SU):	7.0
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	1.0

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~4
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.2 gpm. Well condition excellent.

Masked duplicate (DUPP001, EAG-1001389) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1518	3.8	152	7.0	2
1523	3.9	153	7.0	3
1528	3.9	155	7.0	4

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/22/05
Weather:	Overcast, lt. breeze, ~20°s F	**Sampler(s):**	PMK/PJS
Location:	WLD006	**Sampling time:**	1422
Sample ID:	WLDP006		
KEX ID:	EAG-1001363		
		Temperature (^{o}C):	3.2
Odor:	Hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	35
Appearance:	Slightly tan	Conductivity (µmhos):	20
		pH (SU):	6.0
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	10

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~4.5
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1418	3.1	34	6.0	2.5
1420	3.2	35	6.0	3.5
1422	3.2	35	6.0	4.5

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/22/05
Weather:	Snowy, ~20°s F	**Sampler(s):**	PMK/PJS
Location:	WLD016	**Sampling time:**	1330
Sample ID:	WLDP016		
KEX ID:	EAG-1001364		

		Temperature (^{o}C):	4.6
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	164
Appearance:	Clear	Conductivity (µmhos):	100
		pH (SU):	8.4
		D.O. (ppm):	1.0
		Ferrous Iron (mg/L):	0.3

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~3.5
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1320	4.5	164	8.3	1
1324	4.6	164	8.4	2
1328	4.6	164	8.4	3

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	2/22/05
Weather:	Overcast, light snow, breezy, ~20°s F	**Sampler(s):**	PMK/PJS
Location:	WLD021	**Sampling time:**	1150
Sample ID:	WLDP021		
KEX ID:	EAG-1001365		

		Temperature (^{o}C):	3.6
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	29
Appearance:	Slight yellow cast	Conductivity (µmhos):	17
		pH (SU):	5.6
		D.O. (ppm):	1.0
		Ferrous Iron (mg/L):	0.8

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~10
Well volume:	0.2	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1143	3.6	29	5.5	3
1145	3.6	29	5.6	5
1147	3.6	29	5.6	7
1149	3.6	29	5.6	9

North Jackson Company
Field Sampling Report

Project Name: Eagle BES

Contact: North Jackson Company
1004 Harbor Hills Drive, Suite 102
Marquette, Michigan 49855
Phone (906) 225-6787

Summary of Sampling Activities

Sampling Date(s):	4/12/05, 4/13/05, 4/14/05, 4/19/05, 4/21/05, 4/26/05, 4/27/05, 4/28/05, 5/3/05, 5/4/05, and 5/5/05.
Activities:	Collected surface water samples from the Salmon Trout (STRM001, STRM002, STRM003, STRM004, STRM005, STRW001, STRE001 and STRE002), Yellow Dog (YDRM002 and YDRM003), and Cedar Creek (CDRA002 and CDRM004) monitoring locations.
	Completed 12 flow measurements at above locations on 4/12/05, 4/13/05, 4/14/05, 4/19/05, and 4/21/05.
	Collected groundwater samples at QAL001A/D, QAL002A/D, QAL003A/B, QAL004A/D, QAL005A/D, QAL006A/B, QAL007A/D, QAL008A/D, QAL009A/D, QAL010A, QAL015, QAL016, QAL018, QAL020, WLD001, WLD006, WLD016, and WLD021.
	Collected duplicate, field blank and equipment blank samples.

Field Report Attachments

Field Analytical Data Summary	yes
Flow Measurement	12
Water Sampling Log	39
Chain of Custody Numbers	16021, 16022, 17251, 17252, 17447, 103773, 17421, 17422, 105031, 16765, 16766, 18583, 18584

Laboratory Analysis

Brooks Rand - Mercury
TriMatrix - Metals, major cations & anions, general chemistry
Illinois State Geological Survey - Tritium

Sampler Name(s): Dan Wiitala (DWW), Peter Sabee (PJS), Kari Paulson (KMP), and Richard Eagle (RRE)

North Jackson Company
Surface Water Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (μmhos/cm @ 25°C)	pH (SU)	DO (ppm)
STRM001	STRMS001	EAG-1001401	4/13/05	8.1	17	6.5	6
STRM002	STRMS002	EAG-1001402	4/13/05	6.6	34	7.1	7
STRM003	STRMS003	EAG-1001403	4/14/05	5.2	68	7.9	9
STRM004	STRMS004	EAG-1001404	4/14/05	3.5	64	7.8	8
STRM005	STRMS005	EAG-1001405	4/13/05	4.4	50	7.7	10
STRW001	STRWS001	EAG-1001406	4/14/05	4.0	67	7.5	9
STRE001	STRES001	EAG-1001407	4/14/05	6.4	99	8.0	9
STRE002	STRES002	EAG-1001408	4/19/05	11	104	8.1	8
YDRM002	YDRMS002	EAG-1001409	4/12/05	4.7	18	NM	8
YDRM003	YDRMS003	EAG-1001410	4/21/05	4.3	24	6.9	9
CDRA002	CDRAS002	EAG-1001411	4/19/05	8.9	93	8.4	9
CDRM004	CDRMS004	EAG-1001412	4/19/05	10	112	8.0	7

NM Not measured

North Jackson Company
Flow Measurement Summary

Project Name: Eagle BES

Location	Measurement Date	Flow (cfs)
STRM001	4/13/05	0.6
STRM002	4/12/04	5.3
STRM003	4/14/05	9.3
STRM004	4/14/05	11
STRM005	4/13/05	116
STRW001	4/14/05	10
STRE001	4/14/05	19
STRE002	4/19/05	24
YDRM002	4/12/05	196
YDRM003	4/21/05	66
CDRA002	4/19/05	2.0
CDRM004	4/19/05	18

North Jackson Company
Groundwater Field Data Summary

Project Name: Eagle BES

Location	Sample ID	KEX ID	Sampling Date	Temp (^{o}C)	Spec Cond (µmhos/cm @ 25°C)	pH (SU)	DO (ppm)	Ferrous Iron (mg/L)
QAL001A	QALM001A	EAG-1001423	4/28/05	7.2	88	9.2	6	<0.1
QAL001D	QALM001D	EAG-1001424	4/28/05	7.8	149	9.4	0.00	0.10
QAL002A	QALM002A	EAG-1001425	5/5/05	7.1	56	9.3	NM	NM
QAL002D	QALM002D	EAG-1001426	5/5/05	7.1	115	8.5	NM	NM
QAL003A	QALM003A	EAG-1001427	4/26/05	6.8	136	9.0	NM	NM
QAL003B	QALM003B	EAG-1001428	4/26/05	7.7	87	8.7	<0.001	<0.1
QAL004A	QALM004A	EAG-1001429	4/27/05	7.4	85	9.6	5	<0.1
QAL004D	QALM004D	EAG-1001430	4/27/05	7.5	151	8.9	<0.001	0.2
QAL005A	QALM005A	EAG-1001431	4/26/05	6.6	16	5.6	1.5	0.2
QAL005D	QALM005D	EAG-1001432	4/26/05	7.6	85	8.3	1	0.6
QAL006A	QALM006A	EAG-1001433	4/27/05	6.1	16	5.3	4	<0.1
QAL006B	QALM006B	EAG-1001434	4/27/05	7.8	168	7.3	<0.1	16
QAL007A	QALM007A	EAG-1001435	4/26/05	7.2	43	7.4	7	<0.1
QAL007D	QALM007D	EAG-1001436	4/26/05	7.4	98	8.3	<0.001	1.5
QAL008A	QALM008A	EAG-1001437	4/27/05	7.3	60	9.4	NM	NM
QAL008D	QALM008D	EAG-1001438	4/27/05	6.7	88	8.6	NM	NM
QAL009A	QALM009A	EAG-1001439	4/27/05	7.0	80	9.0	NM	NM
QAL009D	QALM009D	EAG-1001440	4/28/05	7.1	68	8.6	0.40	<0.1
QAL010A	QALM010A	EAG-1001441	4/26/05	7.3	68	8.8	6	<0.01
QAL015	QALP015	EAG-1001442	5/3/05	5.7	113	8.6	7	<0.1
QAL016	QALP016	EAG-1001443	5/3/05	6.5	138	9.1	7	<0.1
QAL018	QALP018	EAG-1001444	5/3/05	5.9	115	7.8	4.5	<0.1
QAL020	QALP020	EAG-1001445	5/3/05	5.1	34	6.4	4	<0.1
WLD001	WLDP001	EAG-1001419	5/5/05	6.7	149	7.3	1	1.0
WLD006	WLDP006	EAG-1001420	5/5/05	5.5	31	6.3	<1.0	2
WLD016	WLDP016	EAG-1001421	5/4/05	5.7	164	8.8	<1	0.2
WLD021	WLDP021	EAG-1001422	5/5/05	5.1	34	5.9	<1.0	2.0

NM Not measured

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
WLD001	5/4/05	1430.41	2.03	8	1428.38
WLD002	5/4/05	1433.12	2.33	8	1430.79
WLD003	5/4/05	1435.66	1.76	8	1433.90
WLD004	5/4/05	1448.91	1.43	8	1447.48
WLD005	5/4/05	1453.50	2.27	8	1451.23
WLD006	5/4/05	1459.29	3.79	8	1455.50
WLD007	5/4/05	1453.70	3.01	8	1450.69
WLD008	5/4/05	1456.60	2.96	8	1453.64
WLD009	5/4/05	1460.17	3.1	8	1457.1
WLD010	5/4/05	1450.90	3.40	8	1447.50
WLD011	5/4/05	1449.51	2.82	8	1446.69
WLD012	5/4/05	1448.60	2.42	8	1446.18
WLD013	5/4/05	1447.81	1.83	8	1445.98
WLD014	5/4/05	1443.47	1.89	8	1441.58
WLD015	5/4/05	1431.28	2.15	8	1429.13
WLD016	5/4/05	1432.34	3.78	8	1428.56
WLD017	5/4/05	1427.70	4.07	8	1423.63
WLD018	5/4/05	1427.34	4.18	8	1423.16
WLD019	5/4/05	1424.93	3.98	8	1420.95
WLD020	5/4/05	1424.13	3.89	8	1420.24
WLD021	5/4/05	1420.58	4.39	8	1416.19
WLD022	5/4/05	1425.66	3.08	8	1422.58
WLD023	5/4/05	1416.42	2.84	8	1413.58

North Jackson Company
Water Level Summary

Project Name: Eagle BES

Location	Date	Measuring Point Elevation (ft MSL)	Depth to Water (ft)	Total Depth (ft)	Water Elevation (ft MSL)
QAL001A	5/4/05	1462.92	51.31	68	1411.61
QAL001D	5/4/05	1462.81	56.43	88	1406.38
QAL002A	5/4/05	1479.54	46.0	63	1433.54
QAL002D	5/4/05	1479.21	84.0	143	1395.21
QAL003A	5/4/05	1436.95	9.40	33	1427.55
QAL003B	5/4/05	1436.48	22.55	50	1413.93
QAL004A	5/4/05	1451.09	24.93	58	1426.16
QAL004D	5/4/05	1450.94	16.58	148	1434.36
QAL005A	5/4/05	1459.74	4.2	28	1455.5
QAL005D	5/4/05	1459.59	5.91	130	1453.68
QAL006A	5/4/05	1423.92	7.96	28	1415.96
QAL006B	5/4/05	1424.33	24.22	83	1400.11
QAL007A	5/4/05	1479.34	50.35	59	1428.99
QAL007D	5/4/05	1479.45	41.30	183	1438.15
QAL008A	5/4/05	1468.19	78.93	93	1389.26
QAL008D	5/4/05	1467.92	114.10	123	1353.82
QAL009A	5/4/05	1457.41	103.39	113	1354.02
QAL009D	5/4/05	1457.35	103.03	148	1354.32
QAL0010A	5/4/05	1444.55	19.66	51	1424.89
QAL015	5/4/05	1296.09	3.18	7	1292.91
QAL016	5/4/05	1275.73	2.04	7	1273.69
QAL017	5/4/05	1255.39	4.22	7	1251.17
QAL018	5/4/05	1253.47	3.06	11	1250.41
QAL019	5/4/05	1288.68	3.29	7	1285.39
QAL020	5/4/05	1338.70	2.99	7	1335.71
QAL021	5/4/05	1392.19	2.91	7	1389.28
QAL022	5/4/05	1300.95	2.53	7	1298.42
QAL023	5/4/05	1421.39	3.23	35	1418.16
YDRM002	NM	1415.12	NM	NA	NM
STRM002	5/4/05	1400.09	0.0	NA	1400.1

NM Not measured
NA Not applicable

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/13/05
Weather:	Clear and windy, ~50°s F	**Sampler(s):**	PJS/RRE
Location:	STRM001	**Sampling time:**	1300
Sample ID:	STRMS001		
KEX ID:	EAG-1001401		
		Temperature (^{o}C):	8.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	17
Appearance:	Slight tannin	Conductivity (μmhos):	25
		pH (SU):	6.5
		D.O. (ppm):	6

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: Diffuse flow out of banks, under banks and through wetland. Possibly only 50% measured.

Meter units: ft/sec

Flow Measurement 4/13/05 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	0.2	2.1	0.14	0.4	0.06
2.4	0.4	2.1	0.14	0.8	0.12
2.8	0.4	2.2	0.12	0.9	0.11
3.2	0.4	2.2	0.10	0.9	0.09
3.6	0.4	2.3	0.10	0.9	0.09
4.0	0.4	2.3	0.08	0.9	0.07
4.4	0.4	2.4	0.03	1.0	0.03
4.8	0.4	2.4	0.02	1.0	0.02
5.2	0.2	0.0	0.00	0.0	0.00

Total Flow: **0.6**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/13/05
Weather:	Clear, breezy, ~40°s F	**Sampler(s):**	PJS/RRE
Location:	STRM002	**Sampling time:**	1100
Sample ID:	STRMS002		
KEX ID:	EAG-1001402		
		Temperature (^{o}C):	6.6
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	34
Appearance:	Slight tannin	Conductivity (μmhos):	22
		pH (SU):	7.1
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: Masked duplicate (DUPS002, EAG-1001414) collected here.

Meter units: ft/sec

Flow Measurement RRE 4/12/04 **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.2	0.8	1.23	0.2	0.20
1.4	0.4	1.1	1.47	0.4	0.65
1.8	0.4	1.1	1.38	0.4	0.61
2.2	0.4	1.1	1.76	0.4	0.77
2.6	0.4	1.0	2.39	0.4	0.96
3.0	0.4	0.9	1.88	0.4	0.68
3.4	0.4	0.6	1.92	0.2	0.46
3.8	0.4	0.5	1.80	0.2	0.36
4.2	0.4	0.4	1.84	0.2	0.29
4.6	0.4	0.3	1.11	0.1	0.13
5.0	0.4	0.3	1.20	0.1	0.14
5.4	0.2	0.0	0.00	0.0	0.00

Total Flow: **5.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/14/05
Weather:	Sunny, calm, ~40°s F	**Sampler(s):**	RRE/DWW
Location:	STRM003	**Sampling time:**	1145
Sample ID:	STRMS003		
KEX ID:	EAG-1001403		
		Temperature (^{o}C):	5.2
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	68
Appearance:	Clear, trace sediment	Conductivity (μmhos):	41
		pH (SU):	7.9
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 4/14/05 RRE/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.5	0.19	0.5	0.10
2.0	0.8	1.0	0.34	0.8	0.26
2.5	0.5	1.1	0.40	0.6	0.22
3.0	0.5	1.4	0.62	0.7	0.43
3.5	0.5	1.4	0.70	0.7	0.49
4.0	0.5	1.4	0.80	0.7	0.56
4.5	0.5	1.4	0.80	0.7	0.56
5.0	0.5	1.4	0.85	0.7	0.60
5.5	0.5	1.3	0.88	0.7	0.57
6.0	0.5	1.3	0.95	0.7	0.62
6.5	0.5	1.3	0.93	0.7	0.60
7.0	0.5	1.3	0.92	0.7	0.60
7.5	0.5	1.3	0.94	0.7	0.61
8.0	0.5	1.3	1.00	0.7	0.65
8.5	0.5	1.2	0.88	0.6	0.53
9.0	0.5	1.1	0.96	0.6	0.53
9.5	0.5	1.1	0.80	0.6	0.44
10.0	0.5	1.0	0.75	0.5	0.38
10.5	0.5	0.9	0.67	0.4	0.28
11.0	0.8	0.5	0.64	0.4	0.24
12.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **9.3**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/14/05
Weather:	Sunny, calm, ~20°s F	**Sampler(s):**	RRE/DWW
Location:	STRM004	**Sampling time:**	0930
Sample ID:	STRMS004		
KEX ID:	EAG-1001404		
		Temperature (^{o}C):	3.5
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	64
Appearance:	Clear, trace sediment	Conductivity (μmhos):	38
		pH (SU):	7.8
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	1	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: 1 bottle for coliform missing tablet so only one bottle collected.

RP = 3.33'.

Meter units: ft/sec

Flow Measurement 4/14/05 RRE/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	1.0	0.0	0.00	0.0	0.00
4.0	1.5	0.7	0.17	1.1	0.18
5.0	1.0	0.9	0.16	0.9	0.14
6.0	1.0	1.2	0.46	1.2	0.55
7.0	0.8	1.4	0.66	1.1	0.74
7.6	0.6	1.4	0.84	0.8	0.71
8.2	0.6	1.5	0.97	0.9	0.87
8.8	0.6	1.6	1.07	1.0	1.03
9.4	0.6	1.6	1.10	1.0	1.06
10.0	0.6	1.6	1.07	1.0	1.03
10.6	0.6	1.6	1.00	1.0	0.96
11.2	0.6	1.5	0.98	0.9	0.88
11.8	0.6	1.2	1.21	0.7	0.87
12.4	0.6	1.4	0.86	0.8	0.72
13.0	0.6	1.4	0.82	0.8	0.69
13.6	0.6	1.3	0.64	0.8	0.50
14.2	0.7	1.2	0.36	0.8	0.30
15.0	0.9	1.2	0.27	1.1	0.29
16.0	1.0	1.1	0.00	1.1	0.00
17.0	1.5	0.9	-0.06	1.4	-0.08
19.0	2.0	0.4	-0.10	0.8	-0.08
21.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **11**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/13/05
Weather:	Clear, calm, ~50°s F	**Sampler(s):**	PJS/RRE
Location:	STRM005	**Sampling time:**	0900
Sample ID:	STRMS005		
KEX ID:	EAG-1001405		
		Temperature (°C):	4.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	50
Appearance:	Slight tannin	Conductivity (µmhos):	32
		pH (SU):	7.7
		D.O. (ppm):	10

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: RP = 3.35'.

Split sample with Eagle Alliance consultant.

Meter units: ft/sec

Flow Measurement 4/13/05 PJS/RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle (degrees)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	1.0	0.0	2	0.00	0.0	0.00
4.0	2.0	1.4	2	0.88	2.8	2.46
6.0	2.0	1.3	2	0.96	2.6	2.49
8.0	2.0	1.4	2	0.44	2.8	1.23
10.0	2.0	1.7	2	1.36	3.4	4.62
12.0	2.0	1.8	2	1.42	3.6	5.11
14.0	2.0	1.8	2	1.60	3.6	5.76
16.0	2.0	1.9	2	1.62	3.8	6.15
18.0	2.0	2.1	2	1.61	4.2	6.76
20.0	2.0	2.1	2	1.65	4.2	6.93
22.0	2.0	2.3	2	1.67	4.6	7.68
24.0	2.0	2.3	2	1.65	4.6	7.59
26.0	2.0	2.4	2	1.80	4.8	8.63
28.0	2.0	2.5	2	1.89	5.0	9.44
30.0	2.0	2.4	2	1.71	4.8	8.20
32.0	2.0	2.4	2	1.61	4.8	7.72
34.0	2.0	2.4	2	1.69	4.8	8.11
36.0	2.0	2.4	2	1.46	4.8	7.00
38.0	2.0	2.5	2	1.51	5.0	7.55
40.0	2.0	2.1	2	0.56	4.2	2.35
42.0	2.0	1.4	2	0.19	2.8	0.53
44.0	1.3	0.9	2	-0.09	1.1	-0.10
44.5	0.3	0.0	2	0.00	0.0	0.00

Total Flow: 116

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/14/05
Weather:	Sunny, dry, calm, ~30°s F	**Sampler(s):**	RRE/DWW
Location:	STRW001	**Sampling time:**	1045
Sample ID:	STRWS001		
KEX ID:	EAG-1001406		
		Temperature (^{o}C):	4.0
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	67
Appearance:	Clear, trace sediment	Conductivity (μmhos):	40
		pH (SU):	7.5
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 4/14/05 RRE/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.7	0.5	2.73	0.4	0.96
2.4	0.4	0.6	2.50	0.2	0.60
2.8	0.4	0.6	2.59	0.2	0.62
3.2	0.4	0.8	2.75	0.3	0.88
3.6	0.4	0.9	2.62	0.4	0.94
4.0	0.4	1.0	2.52	0.4	1.01
4.4	0.4	1.0	2.39	0.4	0.96
4.8	0.4	1.0	2.39	0.4	0.96
5.2	0.4	1.0	2.49	0.4	1.00
5.6	0.4	0.9	2.38	0.4	0.86
6.0	0.4	0.6	2.50	0.2	0.60
6.4	0.4	0.5	2.13	0.2	0.43
6.8	0.4	0.3	2.62	0.1	0.31
7.2	0.3	0.2	2.27	0.1	0.16
7.5	0.1	0.0	0.00	0.0	0.00

Total Flow: **10**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/14/05
Weather:	Sunny, calm, dry, ~50°s F	**Sampler(s):**	RRE/DWW
Location:	STRE001	**Sampling time:**	1315
Sample ID:	STRES001		
KEX ID:	EAG-1001407		
		Temperature (°C):	6.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	99
Appearance:	Clear, trace sediment	Conductivity (µmhos):	64
		pH (SU):	8.0
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 4/14/05 RRE/DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	1.0	0.0	0.00	0.0	0.00
4.0	2.0	0.5	0.51	1.0	0.51
6.0	2.0	0.5	0.76	1.0	0.76
8.0	2.0	1.0	1.14	2.0	2.28
10.0	1.3	1.3	1.22	1.6	1.98
10.5	0.5	1.4	1.00	0.7	0.70
11.0	0.5	1.5	0.94	0.8	0.71
11.5	0.5	1.6	1.01	0.8	0.81
12.0	0.5	1.8	1.02	0.9	0.92
12.5	0.5	2.0	0.85	1.0	0.85
13.0	0.5	2.0	1.00	1.0	1.00
13.5	0.5	2.0	0.93	1.0	0.93
14.0	0.5	2.0	1.05	1.0	1.05
14.5	0.5	1.9	1.14	1.0	1.08
15.0	0.5	1.8	1.23	0.9	1.11
15.5	0.5	1.8	1.28	0.9	1.15
16.0	0.5	1.8	1.11	0.9	1.00
16.5	0.8	1.6	0.94	1.2	1.13
17.5	1.0	1.2	0.33	1.2	0.40
18.5	1.0	1.0	0.28	1.0	0.28
19.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **19**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/19/05
Weather:	Overcast, breezy, ~70°s F	**Sampler(s):**	PJS/RRE
Location:	STRE002	**Sampling time:**	1340
Sample ID:	STRES002		
KEX ID:	EAG-1001408		
		Temperature (^{o}C):	11
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	104
Appearance:	Very slight tannin	Conductivity (µmhos):	76
		pH (SU):	8.1
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: RP = 2.83'.

Meter units: ft/sec

Flow Measurement 4/19/05 PJS/RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	1.5	0.8	-0.05	1.2	-0.06
4.0	1.0	0.8	0.17	0.8	0.14
5.0	1.0	1.6	0.60	1.6	0.96
6.0	1.0	1.7	1.14	1.7	1.94
7.0	1.0	1.6	1.81	1.6	2.90
8.0	1.0	1.6	2.40	1.6	3.84
9.0	1.0	0.8	1.90	0.8	1.52
10.0	1.0	1.6	1.66	1.6	2.66
11.0	1.0	1.4	1.77	1.4	2.48
12.0	1.0	1.4	0.82	1.4	1.15
13.0	1.0	1.3	1.41	1.3	1.83
14.0	1.0	1.2	1.59	1.2	1.91
15.0	1.0	0.8	1.35	0.8	1.08
16.0	1.0	0.7	1.00	0.7	0.70
17.0	1.0	0.8	0.86	0.8	0.69
18.0	1.0	0.6	0.61	0.6	0.37
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **24**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/12/05
Weather:	Breezy, ~40°s F	**Sampler(s):**	RRE/KMP
Location:	YDRM002	**Sampling time:**	1215
Sample ID:	YDRMS002		
KEX ID:	EAG-1001409		
		Temperature (°C):	4.7
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	18
Appearance:	Slight tannin	Conductivity (µmhos):	11
		pH (SU):	NM
		D.O. (ppm):	8

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks: RP =-0.58'. Four bypass measurements made (A-D).

Masked duplicate (DUPS001, EAG-1001413) collected here.

Meter units: ft/sec

Flow Measurement 4/12/05 RRE/KMP **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
3.0	1.0	1.5	1.18		1.5	1.77
5.0	1.5	2.0	1.96		3.0	5.88
6.0	1.0	2.6	2.20	2.15	2.6	5.66
7.0	1.0	3.3	3.28	3.50	3.3	11.19
8.0	1.0	3.7	3.65	3.50	3.7	13.23
9.0	1.0	4.0	3.80	3.65	4.0	14.90
10.0	1.0	4.3	4.07	3.65	4.3	16.60
11.0	1.0	4.5	4.07	3.89	4.5	17.91
12.0	1.0	4.7	3.98	3.98	4.7	18.71
13.0	1.0	4.3	3.89	3.80	4.3	16.53
14.0	1.0	4.0	2.57	3.35	4.0	11.84
15.0	1.0	3.8	2.16	2.92	3.8	9.65
16.0	1.0	3.4	1.96	2.92	3.4	8.30
17.0	1.0	2.6	2.34	2.92	2.6	6.08
18.0	1.0	1.9	2.86		1.9	5.43
19.0	1.0	1.5	1.20		1.5	1.80
20.0	0.5	0.0	0.00		0.0	0.00

Main Flow:	165
A Flow:	7.5
B Flow:	5.8
C Flow:	16
D Flow:	1.0
Total Flow:	**196**

North Jackson Company
Flow Measurement Log

Proj. Name:	Eagle BES	**Date:**	4/12/05
Weather:	Breezy, ~40°s F	**Gage reader:**	RRE
Location:	YDRM002	**YSI Reading time:**	NM

Overflow Measurement A

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	5.0	0.0	0	0.00	0.0	0.00
10.0	10.0	0.9	0	0.16	9.0	1.40
20.0	10.0	1.2	50	0.23	12.0	1.74
30.0	10.0	1.1	50	0.16	11.0	1.12
40.0	10.0	1.0	60	0.29	10.0	1.43
50.0	10.0	0.5	50	0.31	5.0	1.01
60.0	10.0	0.4	45	0.25	4.0	0.71
70.0	7.5	0.3	75	0.13	2.3	0.08
75.0	2.5	0.0	0	0.00	0.0	0.00

Total Flow: 7.5

Overflow Measurement B

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	5.0	0.0	0	0.00	0.0	0.00
10.0	10.0	0.4	80	0.76	4.0	0.53
20.0	10.0	0.8	50	0.66	8.0	3.40
30.0	10.0	1.0	0	0.18	10.0	1.84
40.0	5.0	0.0	0	0.00	0.0	0.00

Total Flow: 5.8

North Jackson Company
Flow Measurement Log

Proj. Name:	Eagle BES	**Date:**	4/12/05
Weather:	Breezy, ~40°s F	**Gage reader:**	RRE
Location:	YDRM002	**YSI Reading time:**	NM

Overflow Measurement C

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	2.5	0.0	0	0.00	0.0	0.00
5.0	5.0	1.2	10	0.17	6.0	1.02
10.0	5.0	1.2	10	0.29	6.0	1.73
15.0	5.0	1.3	15	0.52	6.5	3.23
20.0	7.5	0.9	0	0.38	6.8	2.59
30.0	10.0	0.7	0	0.50	7.0	3.53
40.0	10.0	0.8	15	0.28	8.0	2.16
50.0	10.0	0.8	30	0.29	8.0	2.02
60.0	10.0	0.6	80	0.18	6.0	0.19
70.0	5.0	0.0	0	0.00	0.0	0.00

Total Flow: 16

Overflow Measurement D

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
90.0	2.0	0.0	0	0.00	0.0	0.00
94.0	4.0	0.4	0	0.35	1.6	0.56
98.0	4.0	0.4	0	0.29	1.6	0.46
102.0	2.0	0.0	0	0.00	0.0	0.00

Total Flow: 1.0

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/21/05
Weather:	Light breeze, ~40°s F	**Sampler(s):**	DWW
Location:	YDRM003	**Sampling time:**	1100
Sample ID:	YDRMS003		
KEX ID:	EAG-1001410		
		Temperature (°C):	4.3
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	24
Appearance:	Moderate tannin	Conductivity (µmhos):	15
		pH (SU):	6.9
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: Yes

Remarks: RP = 0.75'. Included overflow measurements A (south channel) and B (north channel).

Main Channel **Meter units:** ft/sec

Flow Measurement 4/21/2005 DWW **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00		0.0	0.00
1.0	1.5	0.3	0.11		0.5	0.05
3.0	2.0	0.7	0.24		1.4	0.34
5.0	2.0	0.9	0.33		1.8	0.59
7.0	2.0	0.8	0.24		1.6	0.38
9.0	2.0	0.7	0.22		1.4	0.31
11.0	1.5	2.4	0.39		3.6	1.40
12.0	1.0	2.7	0.86	0.43	2.7	1.74
13.0	1.0	2.7	0.68	0.48	2.7	1.57
14.0	1.0	3.0	0.88	0.54	3.0	2.13
15.0	1.0	3.0	0.98	0.62	3.0	2.40
16.0	1.0	3.2	0.74	0.71	3.2	2.32
17.0	1.0	3.5	1.02	0.78	3.5	3.15
18.0	1.0	3.8	1.13	1.20	3.8	4.43
19.0	1.0	3.9	1.40	1.50	3.9	5.66
20.0	1.0	3.9	1.38	1.68	3.9	5.97
21.0	1.0	4.1	1.66	1.56	4.1	6.60
22.0	1.0	4.2	1.52	1.55	4.2	6.45
23.0	1.0	4.1	1.06	1.41	4.1	5.06
24.0	1.0	4.0	0.66	0.99	4.0	3.30
25.0	1.0	3.7	0.90	0.68	3.7	2.92
26.0	1.0	3.5	1.01	0.53	3.5	2.70
27.0	1.0	3.2	1.18	0.21	3.2	2.22
28.0	1.0	2.6	0.82	-0.09	2.6	0.95
29.0	1.0	2.0	0.02		2.00	0.04
30.0	1.0	0.7	0.04		0.70	0.03
31.0	1.0	0.4	-0.02		0.40	-0.01
32.0	0.5	0.0	0.00		0.00	0.00

Main Flow:	63
A Flow:	1.1
B Flow:	2.4
Total Flow:	**66**

North Jackson Company
Flow Measurement Log

Proj. Name:	Eagle BES	**Date:**	4/21/05
Weather:	Light breeze, ~40°s F	**Gage reader:**	DWW
Location:	YDRM003	**YSI Reading time:**	1100

Overflow Measurement A

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.1	0.00	0.0	0.00
0.5	0.5	0.2	0.02	0.1	0.00
1.0	0.5	0.5	-0.02	0.3	-0.01
1.5	0.5	0.9	0.46	0.5	0.21
2.0	0.5	1.3	0.88	0.7	0.57
2.5	0.5	1.1	0.59	0.6	0.32
3.0	0.3	0.0	0.00	0.0	0.00

Total Flow: 1.1

Overflow Measurement B

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
15.0	0.5	0.0	0.00	0.0	0.00
14.0	1.0	0.3	0.30	0.3	0.09
13.0	1.0	0.4	0.45	0.4	0.18
12.0	1.0	0.5	0.50	0.5	0.25
11.0	1.0	0.8	0.00	0.8	0.00
10.0	1.0	0.7	0.64	0.7	0.45
9.0	1.0	0.9	0.45	0.9	0.41
8.0	1.0	0.8	0.35	0.8	0.28
7.0	1.0	0.9	0.11	0.9	0.10
6.0	1.0	0.6	0.73	0.6	0.44
5.0	1.0	0.4	0.42	0.4	0.17
4.0	1.0	0.2	0.17	0.2	0.03
3.0	0.5	0.0	0.00	0.0	0.00

Total Flow: 2.4

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/19/05
Weather:	Clear, breeze, ~70°s F	**Sampler(s):**	RRE/PJS
Location:	CDRA002	**Sampling time:**	1100
Sample ID:	CDRAS002		
KEX ID:	EAG-1001411		
		Temperature (^{o}C):	8.9
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	93
Appearance:	Clear	Conductivity (μmhos):	64
		pH (SU):	8.4
		D.O. (ppm):	9

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 4/19/05 RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.3	0.1	0.0	0.00	0.0	0.00
0.5	0.3	0.3	0.68	0.1	0.06
0.9	0.4	0.4	0.64	0.2	0.10
1.3	0.4	0.5	1.10	0.2	0.22
1.7	0.4	0.5	2.32	0.2	0.46
2.1	0.4	0.5	2.48	0.2	0.50
2.5	0.4	0.4	2.23	0.2	0.36
2.9	0.4	0.3	1.84	0.1	0.22
3.3	0.4	0.2	0.46	0.1	0.04
3.7	0.2	0.0	0.00	0.0	0.00

Total Flow: **2.0**

North Jackson Company
Surface Water Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/19/05
Weather:	Partly cloudy, light breeze, ~70°s F	**Sampler(s):**	PJS/RRE
Location:	CDRM004	**Sampling time:**	1140
Sample ID:	CDRMS004		
KEX ID:	EAG-1001412		
		Temperature (^{o}C):	10
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	112
Appearance:	Clear	Conductivity (μmhos):	80
		pH (SU):	8.0
		D.O. (ppm):	7

Sampling method: Grab sample

Tag	#Collected	Bottle	Preservative	Parameter
Green	3	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
Red solid	1	500 ml plastic	HNO3	Total metals & radiation
Pink	3	40 ml amber glass	H2SO4	TOC
Dark blue	1	500 ml plastic	H2SO4	Nutrients
None	1	250 ml Teflon	None	Total Hg
Yellow	2	40 ml clear glass	HCL	BTEX
Blue	2	1000 ml clear glass	H2SO4	SGT-HEM
Orange	1	500 ml amber	None	DOC
None	2	125 ml plastic	Sodium thiosulfate	Coliform
Green	1	250 ml amber glass	ZnAc + NaOH	Sulfide

Photographs: None

Remarks:

Meter units: ft/sec

Flow Measurement 4/19/05 PJS/RRE **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	1.3	0.62	1.3	0.81
2.0	1.0	1.5	0.54	1.5	0.81
3.0	1.0	1.7	0.68	1.7	1.16
4.0	0.8	2.0	0.79	1.6	1.26
4.6	0.6	2.0	0.63	1.2	0.76
5.2	0.6	2.1	0.89	1.3	1.12
5.8	0.6	2.0	0.92	1.2	1.10
6.4	0.6	2.1	0.93	1.3	1.17
7.0	0.6	2.0	0.98	1.2	1.18
7.6	0.6	2.0	0.98	1.2	1.18
8.2	0.6	2.0	0.98	1.2	1.18
8.8	0.6	2.0	0.96	1.2	1.15
9.4	0.6	1.9	0.92	1.1	1.05
10.0	0.8	2.0	0.85	1.6	1.36
11.0	1.0	1.5	0.89	1.5	1.34
12.0	1.0	1.3	0.88	1.3	1.14
13.0	1.0	1.3	0.18	1.3	0.23
14.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **18**

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/28/05
Weather:	Overcast, breezy, ~30°s F	**Sampler(s):**	PJS/RRE
Location:	QAL001A	**Sampling time:**	1526
Sample ID:	QALM001A		
KEX ID:	EAG-1001423		

		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	88
Appearance:	Clear	Conductivity (µmhos):	58
		pH (SU):	9.2
		D.O. (ppm):	6
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	68	ft	Well diameter (in):	2
Approx. Depth to water:	52	ft		
Water column in well:	16	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~19
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1517	7.2	89	9.2	10
1520	7.2	89	9.2	13
1523	7.2	87	9.2	16
1526	7.2	88	9.2	19

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/28/05
Weather:	Overcast, breezy, ~30°s F	**Sampler(s):**	PJS/RRE
Location:	QAL001D	**Sampling time:**	1609
Sample ID:	QALM001D		
KEX ID:	EAG-1001424		

		Temperature (^{o}C):	7.8
Odor:	Slight hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	149
Appearance:	Cloudy	Conductivity (µmhos):	100
		pH (SU):	9.4
		D.O. (ppm):	0.004
		Ferrous Iron (mg/L):	0.1

Description of measuring point: Mark on PVC riser

Total depth:	88	ft	Well diameter (in):	2.5
Approx. Depth to water:	53	ft		
Water column in well:	35	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~27
Well volume:	9	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1525	7.7	158	9.3	5
1551	7.8	154	9.5	18
1609	7.8	149	9.4	27

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/5/05
Weather:	Overcast, windy, ~50°s F	**Sampler(s):**	RRE/PJS
Location:	QAL002A	**Sampling time:**	1130
Sample ID:	QALM002A		
KEX ID:	EAG-1001425		

		Temperature (^{o}C):	7.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	56
Appearance:	Some sediment from bailing	Conductivity (μmhos):	38
		pH (SU):	9.3
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	63	ft	Well diameter (in):	2
Approx. Depth to water:	45	ft		
Water column in well:	18	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~11
Well volume:	3	gal		

Evacuation method: Dedicated bailer

Tag	**# Collected**	**Bottle**	**Preservative**	**Parameter**
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent.

Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/5/05
Weather:	Overcast, windy, ~50°s F	**Sampler(s):**	RRE/PJS
Location:	QAL002D	**Sampling time:**	1220
Sample ID:	QALM002D		
KEX ID:	EAG-1001426		

		Temperature (^{o}C):	7.1
Odor:	Slight hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	115
Appearance:	Some sediment from bailing	Conductivity (μmhos):	80
		pH (SU):	8.5
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	143	ft	Well diameter (in):	2.5
Approx. Depth to water:	86	ft		
Water column in well:	57	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~20
Well volume:	15	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent.

Bailed. Dry at 20 gal so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/26/05
Weather:	Snow, overcast, breezy, ~30°s F	**Sampler(s):**	RRE/PJS
Location:	QAL003A	**Sampling time:**	1250
Sample ID:	QALM003A		
KEX ID:	EAG-1001427		

		Temperature (^{o}C):	6.8
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	136
Appearance:	Tan, silty	Conductivity (µmhos):	89
		pH (SU):	9.0
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	33	ft	Well diameter (in):	2
Approx. Depth to water:	11	ft		
Water column in well:	21	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~16
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Pumped dry so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/26/05
Weather:	Snow, overcast, breezy, ~30°s F	**Sampler(s):**	RRE/PJS
Location:	QAL003B	**Sampling time:**	1205
Sample ID:	QALM003B		
KEX ID:	EAG-1001428		

		Temperature (^{o}C):	7.7
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	87
Appearance:	Clear	Conductivity (µmhos):	59
		pH (SU):	8.7
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	50	ft	Well diameter (in):	2.5
Approx. Depth to water:	24	ft		
Water column in well:	26	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~30
Well volume:	7	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1145	7.7	89	8.6	10
1155	7.7	84	8.6	20
1205	7.7	87	8.7	30

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/27/05
Weather:	Cloudy, snow showers, ~30°s F	**Sampler(s):**	DWW/RRE
Location:	QAL004A	**Sampling time:**	1125
Sample ID:	QALM004A		
KEX ID:	EAG-1001429		

		Temperature (^{o}C):	7.4
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	85
Appearance:	Clear	Conductivity (µmhos):	56
		pH (SU):	9.6
		D.O. (ppm):	5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	58	ft	Well diameter (in):	2
Approx. Depth to water:	26	ft		
Water column in well:	32	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~33
Well volume:	5	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Date	Tag	# Collected	Bottle	Preservative	Parameter
	Green	1	1000 ml plastic	Ice	Various
	Red stripe	1	500 ml plastic	HNO3	Filtered metals
	None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Masked duplicate (DUPM002, EAG-1001447) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1055	7.0	71	9.2	3
1105	7.1	84	9.6	13
1115	7.1	85	9.6	23

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/27/05
Weather:	Cloudy, snow showers, ~30°s F	**Sampler(s):**	DWW/RRE
Location:	QAL004D	**Sampling time:**	1140
Sample ID:	QALM004D		
KEX ID:	EAG-1001430		

		Temperature (^{o}C):	7.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	151
Appearance:	Clear	Conductivity (µmhos):	101
		pH (SU):	8.9
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	17	ft		
Water column in well:	131	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~105
Well volume:	33	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Masked duplicate (DUPM003, EAG-1001448) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1105	7.4	149	8.9	35
1120	7.4	151	8.9	65
1140	7.5	151	8.9	105

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/26/05
Weather:	Overcast, breezy, mist, ~30°s F	**Sampler(s):**	RRE/PJS
Location:	QAL005A	**Sampling time:**	1000
Sample ID:	QALM005A		
KEX ID:	EAG-1001431		

		Temperature (^{o}C):	6.6
Odor:	Slightly swampy	Spec. Cond. (µmhos/cm @ 25°C):	16
Appearance:	Clear	Conductivity (µmhos):	11
		pH (SU):	5.6
		D.O. (ppm):	1.5
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Mark on PVC riser

Total depth:	28	ft		Well diameter (in):	2
Approx. Depth to water:	6	ft	4.731		
Water column in well:	22	ft		Gallons purged	
Volume/foot:	0.16	gal/ft		prior to sampling:	~49
Well volume:	4	gal			

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
0935	6.6	16	5.6	24
0945	6.6	16	5.6	34
0955	6.6	16	5.6	44
1000	6.6	16	5.6	49

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/26/05
Weather:	Overcast, breezy, mist, ~30°s F	**Sampler(s):**	RRE/PJS
Location:	QAL005D	**Sampling time:**	1115
Sample ID:	QALM005D		
KEX ID:	EAG-1001432		

		Temperature (^{o}C):	7.6
Odor:	Slightly swampy	Spec. Cond. (μmhos/cm @ 25°C):	85
Appearance:	Clear	Conductivity (μmhos):	57
		pH (SU):	8.3
		D.O. (ppm):	0.6
		Ferrous Iron (mg/L):	0.6

Description of measuring point: Mark on PVC riser

Total depth:	130	ft	Well diameter (in):	2.5
Approx. Depth to water:	6	ft		
Water column in well:	124	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~120
Well volume:	32	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
0945	7.5	95	8.3	30
1015	7.6	82	8.3	60
1045	7.6	81	8.3	90
1115	7.6	85	8.3	120

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/27/05
Weather:	Windy, snow showers, ~30°s F	**Sampler(s):**	DWW/RRE
Location:	QAL006A	**Sampling time:**	1245
Sample ID:	QALM006A		
KEX ID:	EAG-1001433		

		Temperature (^{o}C):	6.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	16
Appearance:	Clear	Conductivity (µmhos):	10
		pH (SU):	5.3
		D.O. (ppm):	4
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	28	ft	Well diameter (in):	2
Approx. Depth to water:	10	ft		
Water column in well:	18	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~18
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1238	6.3	16	5.6	6
1241	6.1	16	5.3	12
1244	6.1	16	5.3	18

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/27/05
Weather:	Windy, snow showers, ~30°s F	**Sampler(s):**	DWW/RRE
Location:	QAL006B	**Sampling time:**	1355
Sample ID:	QALM006B		
KEX ID:	EAG-1001434		

		Temperature (^{o}C):	7.8
Odor:	Slight hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	168
Appearance:	Yellow cast	Conductivity (µmhos):	113
		pH (SU):	7.3
		D.O. (ppm):	<0.1
		Ferrous Iron (mg/L):	16

Description of measuring point: Mark on PVC riser

Total depth:	83	ft	Well diameter (in):	2.5
Approx. Depth to water:	24	ft		
Water column in well:	59	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~45
Well volume:	15	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1338	7.8	160	7.2	15
1345	7.8	168	7.3	29
1353	7.8	168	7.3	45

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/26/05
Weather:	Overcast, breezy, rain/snow, ~30°s F	**Sampler(s):**	RRE/PJS
Location:	QAL007A	**Sampling time:**	1415
Sample ID:	QALM007A		
KEX ID:	EAG-1001435		

		Temperature (^{o}C):	7.2
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	43
Appearance:	Clear	Conductivity (µmhos):	28
		pH (SU):	7.4
		D.O. (ppm):	7
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	59	ft	Well diameter (in):	2
Approx. Depth to water:	40	ft		
Water column in well:	19	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~60
Well volume:	3	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1355	7.2	43	7.5	40
1400	7.2	43	7.5	45
1405	7.2	43	7.4	50
1410	7.2	43	7.4	55

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/26/05
Weather:	Overcast, breezy, rain/snow, ~30°s F	**Sampler(s):**	RRE/PJS
Location:	QAL007D	**Sampling time:**	1500
Sample ID:	QALM007D		
KEX ID:	EAG-1001436		

		Temperature (^{o}C):	7.4
Odor:	Slight hydrogen sulfide	Spec. Cond. (µmhos/cm @ 25°C):	98
Appearance:	Clear	Conductivity (µmhos):	65
		pH (SU):	8.3
		D.O. (ppm):	<0.001
		Ferrous Iron (mg/L):	1.5

Description of measuring point: Mark on PVC riser

Total depth:	183	ft	Well diameter (in):	2.5
Approx. Depth to water:	50	ft		
Water column in well:	133	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~164
Well volume:	34	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1335	7.3	99	8.9	37
1400	7.4	103	8.4	75
1425	7.4	99	8.4	112
1500	7.4	98	8.3	164

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/27/05
Weather:	Overcast, cool, flurries/rain, ~30°s F	**Sampler(s):**	KMP/PJS
Location:	QAL008A	**Sampling time:**	1245
Sample ID:	QALM008A		
KEX ID:	EAG-1001437		

		Temperature (^{o}C):	7.3
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	60
Appearance:	Turbid from bailing	Conductivity (μmhos):	40
		pH (SU):	9.4
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	93	ft	Well diameter (in):	2
Approx. Depth to water:	78	ft		
Water column in well:	15	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~6
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/27/05
Weather:	Overcast, cool, flurries/rain, ~30°s F	**Sampler(s):**	KMP/PJS
Location:	QAL008D	**Sampling time:**	1315
Sample ID:	QALM008D		
KEX ID:	EAG-1001438		

		Temperature (^{o}C):	6.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	88
Appearance:	Slight turbidity	Conductivity (μmhos):	57
		pH (SU):	8.6
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	123	ft	Well diameter (in):	2.5
Approx. Depth to water:	114	ft		
Water column in well:	9	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~6
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: Yes

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/27/05
Weather:	Overcast, cool, flurries/rain, ~30°s F	**Sampler(s):**	PJS/DWW
Location:	QAL009A	**Sampling time:**	1530
Sample ID:	QALM009A		
KEX ID:	EAG-1001439		

		Temperature (^{o}C):	7.0
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	80
Appearance:	Tan, slightly turbid	Conductivity (µmhos):	53
		pH (SU):	9.0
		D.O. (ppm):	NM
		Ferrous Iron (mg/L):	NM

Description of measuring point: Mark on PVC riser

Total depth:	113	ft	Well diameter (in):	2
Approx. Depth to water:	102	ft		
Water column in well:	11	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~6
Well volume:	2	gal		

Evacuation method: Dedicated bailer

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Well condition excellent. Bailed so no stabilization record.

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/28/05
Weather:	Overcast, breezy, ~30°s F	**Sampler(s):**	PJS/RRE
Location:	QAL009D	**Sampling time:**	1400
Sample ID:	QALM009D		
KEX ID:	EAG-1001440		

		Temperature (^{o}C):	7.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	68
Appearance:	Clear	Conductivity (µmhos):	44
		pH (SU):	8.6
		D.O. (ppm):	0.40
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Mark on PVC riser

Total depth:	148	ft	Well diameter (in):	2.5
Approx. Depth to water:	103	ft		
Water column in well:	45	ft	Gallons purged	
Volume/foot:	0.26	gal/ft	prior to sampling:	~60
Well volume:	11	gal		

Evacuation method: Dedicated submersible pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1330	7.1	71	8.5	30
1340	7.1	67	8.5	40
1350	7.1	67	8.5	50
1400	7.1	68	8.6	60

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	4/26/05
Weather:	Breezy, overcast, ~30°s F	**Sampler(s):**	PJS/RRE
Location:	QAL010A	**Sampling time:**	1600
Sample ID:	QALM010A		
KEX ID:	EAG-1001441		

		Temperature (^{o}C):	7.3
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	68
Appearance:	Clear	Conductivity (µmhos):	45
		pH (SU):	8.8
		D.O. (ppm):	6
		Ferrous Iron (mg/L):	<0.01

Description of measuring point: Mark on PVC riser

Total depth:	51	ft	Well diameter (in):	2
Approx. Depth to water:	20	ft		
Water column in well:	31	ft	Gallons purged	
Volume/foot:	0.16	gal/ft	prior to sampling:	~40
Well volume:	5	gal		

Evacuation method: Dedicated submersible whale pump with dedicated tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1545	7.3	69	8.7	17
1550	7.3	69	8.8	25
1555	7.3	68	8.8	32
1600	7.3	68	8.8	40

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/3/05
Weather:	Sunny, breezy, ~40°s F	**Sampler(s):**	DWW/RRE
Location:	QAL015	**Sampling time:**	1110
Sample ID:	QALP015		
KEX ID:	EAG-1001442		

		Temperature (^{o}C):	5.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	113
Appearance:	Clear	Conductivity (μmhos):	71
		pH (SU):	8.6
		D.O. (ppm):	7.0
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	3	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~5
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1102	5.7	112	8.7	1
1104	5.8	112	8.5	2
1106	5.8	113	8.6	3
1108	5.7	113	8.6	4

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/3/05
Weather:	Sunny, breezy, ~40°s F	**Sampler(s):**	DWW/RRE
Location:	QAL016	**Sampling time:**	1210
Sample ID:	QALP016		
KEX ID:	EAG-1001443		

		Temperature (^{o}C):	6.5
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	138
Appearance:	Clear	Conductivity (µmhos):	89
		pH (SU):	9.1
		D.O. (ppm):	7
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	1	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~5
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Masked duplicate (DUPP004, EAG-1001449) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1204	6.5	138	9.1	2.0
1207	6.5	138	9.1	3.5
1209	6.5	138	9.1	4.5

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/3/05
Weather:	Sunny, breezy, ~40°s F	**Sampler(s):**	DWW/RRE
Location:	QAL018	**Sampling time:**	1335
Sample ID:	QALP018		
KEX ID:	EAG-1001444		

		Temperature (^{o}C):	5.9
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	115
Appearance:	Clear	Conductivity (µmhos):	73
		pH (SU):	7.8
		D.O. (ppm):	4.5
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	12	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	8	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~4
Well volume:	0.5	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1322	6.5	114	8.0	1.25
1324	6.4	114	7.8	1.75
1326	5.9	115	7.8	2.25
1328	5.9	115	7.8	2.75

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/3/05
Weather:	Sunny, breezy, ~40°s F	**Sampler(s):**	DWW/RRE
Location:	QAL020	**Sampling time:**	1435
Sample ID:	QALP020		
KEX ID:	EAG-1001445		

		Temperature (^{o}C):	5.1
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	34
Appearance:	Clear	Conductivity (μmhos):	21
		pH (SU):	6.4
		D.O. (ppm):	4.0
		Ferrous Iron (mg/L):	<0.1

Description of measuring point: Top of stainless pipe

Total depth:	7	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~2
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1415	5.2	35	6.7	0.75
1427	5.1	34	6.5	1.5
1434	5.1	34	6.4	2.0

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/5/05
Weather:	Clear, windy, ~50°s F	**Sampler(s):**	PJS/RRE
Location:	WLD001	**Sampling time:**	1120
Sample ID:	WLDP001		
KEX ID:	EAG-1001419		

		Temperature (^{o}C):	6.7
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	149
Appearance:	Clear	Conductivity (µmhos):	97
		pH (SU):	7.3
		D.O. (ppm):	1.0
		Ferrous Iron (mg/L):	1.0

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	2	ft		
Water column in well:	6	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~4
Well volume:	0.4	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.2 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1112	7.1	146	7.4	2.0
1115	6.8	148	7.3	2.6
1117	6.7	149	7.3	3.2
1120	6.7	149	7.3	3.8

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/5/05
Weather:	Clear, breezy, ~40°s F	**Sampler(s):**	PJS/RRE
Location:	WLD006	**Sampling time:**	1040
Sample ID:	WLDP006		
KEX ID:	EAG-1001420		

		Temperature (^{o}C):	5.5
Odor:	Hydrogen sulfide	Spec. Cond. (μmhos/cm @ 25°C):	31
Appearance:	Slightly tan	Conductivity (μmhos):	20
		pH (SU):	6.3
		D.O. (ppm):	<1.0
		Ferrous Iron (mg/L):	1.5

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~8
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.5 gpm. Well condition excellent.

Masked duplicate (DUPP001, EAG-1001446) collected here.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1034	5.6	31	6.2	5
1036	5.6	32	6.2	6
1038	5.5	31	6.1	7
1040	5.5	31	6.3	8

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/4/05
Weather:	Sunny, breezy, ~50°s F	**Sampler(s):**	DWW/RRE
Location:	WLD016	**Sampling time:**	1245
Sample ID:	WLDP016		
KEX ID:	EAG-1001421		

		Temperature (^{o}C):	5.7
Odor:	None	Spec. Cond. (μmhos/cm @ 25°C):	164
Appearance:	Clear	Conductivity (μmhos):	103
		pH (SU):	8.8
		D.O. (ppm):	<1
		Ferrous Iron (mg/L):	0.2

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	3	ft		
Water column in well:	5	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~5
Well volume:	0.3	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~0.25 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (μmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1234	6.0	162	8.7	2.25
1236	5.9	163	8.7	2.75
1238	5.7	163	8.7	3.25
1240	5.7	164	8.8	4.25

North Jackson Company
Groundwater Sampling Log

Proj. Name:	Eagle BES	**Date:**	5/5/05
Weather:	Overcast, windy, ~60°s F	**Sampler(s):**	PJS/RRE
Location:	WLD021	**Sampling time:**	1330
Sample ID:	WLDP021		
KEX ID:	EAG-1001422		

		Temperature (^{o}C):	5.1
Odor:	None	Spec. Cond. (µmhos/cm @ 25°C):	34
Appearance:	Slight yellow cast	Conductivity (µmhos):	21
		pH (SU):	5.9
		D.O. (ppm):	<1.0
		Ferrous Iron (mg/L):	2.0

Description of measuring point: Top of stainless pipe

Total depth:	8	ft	Well diameter (in):	1.25
Approx. Depth to water:	4	ft		
Water column in well:	4	ft	Gallons purged	
Volume/foot:	0.06	gal/ft	prior to sampling:	~9
Well volume:	0.2	gal		

Evacuation method: Peristaltic pump with new tubing

Tag	# Collected	Bottle	Preservative	Parameter
Green	1	1000 ml plastic	Ice	Various
Red stripe	1	500 ml plastic	HNO3	Filtered metals
None	1	250 ml Teflon	None	Filtered Hg

Photographs: None

Remarks: Pump rate ~1 gpm. Well condition excellent.

Stabilization Record:

Time	Temp (^{o}C)	Spec. Cond. (µmhos/cm @ 25°C)	pH (SU)	Volume Removed (gal)
1327	5.3	33	5.3	6
1328	5.0	33	5.9	7
1329	5.0	34	5.9	8
1330	5.1	34	5.9	9

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 8/23/04
Weather: Light breeze, ~50°s F **Gage reader:** RRE
Location: STRE002

Start time: 1245 RP start (ft): 3.04

Finish time: 1306 RP end (ft): 3.03

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.0
2.0	1.5	0.8	0.06	1.2	0.1
3.0	1.0	0.8	0.19	0.8	0.2
4.0	1.0	1.6	0.53	1.6	0.8
5.0	1.0	1.5	1.06	1.5	1.6
6.0	0.8	1.4	1.61	1.1	1.7
6.5	0.5	1.3	1.81	0.7	1.2
7.0	0.5	1.4	1.91	0.7	1.3
7.5	0.5	1.5	1.71	0.8	1.3
8.0	0.5	1.4	1.39	0.7	1.0
8.5	0.5	1.5	1.37	0.8	1.0
9.0	0.5	1.4	1.46	0.7	1.0
9.5	0.5	1.3	1.32	0.7	0.9
10.0	0.5	1.3	1.53	0.7	1.0
10.5	0.5	0.9	1.63	0.5	0.7
11.0	0.5	1.1	1.39	0.6	0.8
11.5	0.5	1.0	1.39	0.5	0.7
12.0	0.8	1.1	1.00	0.8	0.8
13.0	1.0	1.2	0.89	1.2	1.1
14.0	1.0	0.9	0.75	0.9	0.7
15.0	1.0	0.7	0.67	0.7	0.5
16.0	1.0	0.8	0.53	0.8	0.4
17.0	1.0	0.5	0.50	0.5	0.3
18.0	0.5	0.0	0.00	0.0	0.0

Total Flow: **19**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 8/25/04
Weather: Partly cloudy, ~60°s F **Gage Reader:** RRE
Location: STRE002

Start time: 1345 RP start (ft): 2.98

Finish time: 1420 RP end (ft): 3.00

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	1.5	0.7	0.10	1.1	0.11
4.0	1.0	1.4	0.30	1.4	0.42
5.0	1.0	1.5	0.70	1.5	1.05
6.0	0.8	1.5	1.16	1.1	1.31
6.5	0.5	1.5	1.33	0.8	1.00
7.0	0.5	1.4	1.62	0.7	1.13
7.5	0.5	1.5	1.86	0.8	1.40
8.0	0.5	1.1	1.99	0.6	1.09
8.5	0.5	1.1	1.87	0.6	1.03
9.0	0.5	1.3	1.50	0.7	0.98
9.5	0.5	1.5	1.44	0.8	1.08
10.0	0.5	1.4	1.46	0.7	1.02
10.5	0.5	1.3	1.46	0.7	0.95
11.0	0.5	1.0	1.62	0.5	0.81
11.5	0.5	1.0	1.18	0.5	0.59
12.0	0.5	1.3	1.35	0.7	0.88
12.5	0.5	1.2	1.41	0.6	0.85
13.0	0.8	1.2	0.91	0.9	0.82
14.0	1.0	0.7	0.98	0.7	0.69
15.0	1.0	0.7	0.69	0.7	0.48
16.0	1.0	0.7	0.39	0.7	0.27
17.0	1.0	0.5	0.40	0.5	0.20
18.0	1.0	0.5	0.33	0.5	0.17
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **18**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 9/1/04
Weather: Cloudy, ~50°s F **Gage Reader:** RRE
Location: STRE002

Start time: 1200 RP start (ft): 3.08

Finish time: 1215 RP end (ft): NM

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	1.5	0.7	0.03	1.1	0.03
3.0	1.0	0.7	0.11	0.7	0.08
4.0	1.0	1.5	0.51	1.5	0.77
5.0	1.0	1.5	0.82	1.5	1.23
6.0	1.0	1.4	1.31	1.4	1.83
7.0	1.0	1.3	1.66	1.3	2.16
8.0	1.0	1.3	1.11	1.3	1.44
9.0	1.0	1.3	1.27	1.3	1.65
10.0	1.0	1.3	1.11	1.3	1.44
11.0	1.0	1.0	0.59	1.0	0.59
12.0	1.0	1.1	1.02	1.1	1.12
13.0	1.0	1.0	0.82	1.0	0.84
14.0	1.0	0.8	0.50	0.8	0.40
15.0	1.0	0.6	0.48	0.6	0.29
16.0	1.0	0.6	0.45	0.6	0.27
17.0	1.0	0.4	0.38	0.4	0.15
18.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **14**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 9/15/04
Weather: Cloudy, light rain, ~60°s F **Gage Reader:** REE
Location: STRE002

Start time: 1030 RP start (ft): 3.00

Finish time: 1105 RP end (ft): 3.00

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	1.5	0.4	0.02	0.6	0.01
3.0	1.0	1.0	0.02	1.0	0.02
4.0	1.0	1.2	0.27	1.2	0.32
5.0	1.0	1.6	0.50	1.6	0.80
6.0	1.0	1.6	1.17	1.6	1.87
7.0	1.0	1.5	1.81	1.5	2.72
8.0	1.0	1.5	1.78	1.5	2.67
9.0	1.0	1.5	1.63	1.5	2.45
10.0	1.0	1.4	1.48	1.4	2.07
11.0	1.0	0.9	1.78	0.9	1.60
12.0	1.0	1.3	1.27	1.3	1.65
13.0	1.0	1.2	1.01	1.2	1.21
14.0	1.0	1.0	0.87	1.0	0.87
15.0	1.0	1.0	0.52	1.0	0.52
16.0	1.0	1.0	0.43	1.0	0.43
17.0	1.0	0.6	0.51	0.6	0.31
18.0	1.0	0.5	0.42	0.5	0.21
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **20**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, sunny, ~50°s F
Location: STRE002

Date: 9/29/04
Gage Reader: RRE

Start time: 1410 RP start (ft): 3.10

Finish time: 1430 RP end (ft): 3.10

Inst. read (ft): 1.873

Remarks:

Meter units: m/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	0.5	0.6	0.02	0.07	0.3	0.02
3.0	1.0	1.3	0.07	0.23	1.3	0.30
4.0	0.8	1.5	0.22	0.72	1.1	0.81
4.5	0.5	1.4	0.29	0.95	0.7	0.67
5.0	0.5	1.4	0.29	0.95	0.7	0.67
5.5	0.5	1.4	0.38	1.25	0.7	0.87
6.0	0.5	1.3	0.47	1.54	0.7	1.00
6.5	0.5	1.3	0.46	1.51	0.7	0.98
7.0	0.5	1.3	0.35	1.15	0.7	0.75
7.5	0.5	1.3	0.33	1.08	0.7	0.70
8.0	0.5	1.4	0.30	0.98	0.7	0.69
8.5	0.5	1.3	0.34	1.12	0.7	0.73
9.0	0.5	1.2	0.32	1.05	0.6	0.63
9.5	0.5	1.1	0.36	1.18	0.6	0.65
10.0	0.5	1.1	0.37	1.21	0.6	0.67
10.5	0.5	1.2	0.18	0.59	0.6	0.35
11.0	0.5	1.1	0.32	1.05	0.6	0.58
11.5	0.5	1.0	0.24	0.79	0.5	0.39
12.0	0.8	1.1	0.20	0.66	0.8	0.54
13.0	1.0	0.7	0.19	0.62	0.7	0.44
14.0	1.0	0.7	0.12	0.39	0.7	0.28
15.0	1.0	0.7	0.13	0.43	0.7	0.30
16.0	1.0	0.5	0.14	0.46	0.5	0.23
17.0	0.5	0.0	0.00	0.00	0.0	0.00

Total Flow: **13**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 10/25/04
Weather: Cloudy, ~40°s F **Gage Reader:** RRE
Location: STRE002

Start time: 1155 RP start (ft): 3.00

Finish time: 1225 RP end (ft): 3.00

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	1.0	0.4	-0.03	0.4	-0.01
3.0	1.0	0.9	0.01	0.9	0.01
4.0	1.0	1.5	0.36	1.5	0.54
5.0	0.8	1.7	0.74	1.3	0.94
5.5	0.5	1.7	1.40	0.9	1.19
6.0	0.5	1.7	1.70	0.9	1.45
6.5	0.5	1.4	1.93	0.7	1.35
7.0	0.5	1.3	2.10	0.7	1.37
7.5	0.5	1.5	1.93	0.8	1.45
8.0	0.5	1.5	1.81	0.8	1.36
8.5	0.5	1.4	1.50	0.7	1.05
9.0	0.5	1.4	1.50	0.7	1.05
9.5	0.5	1.3	1.60	0.7	1.04
10.0	0.5	1.3	1.25	0.7	0.81
10.5	0.5	1.4	1.32	0.7	0.92
11.0	0.5	1.0	1.85	0.5	0.93
11.5	0.5	1.2	1.13	0.6	0.68
12.0	0.5	1.1	1.24	0.6	0.68
12.5	0.5	1.3	1.04	0.7	0.68
13.0	0.5	1.2	0.92	0.6	0.55
13.5	0.5	1.3	0.73	0.7	0.47
14.0	0.8	1.3	0.71	1.0	0.69
15.0	1.0	1.0	0.52	1.0	0.52
16.0	1.0	0.8	0.50	0.8	0.40
17.0	1.0	0.6	0.43	0.6	0.26
18.0	1.0	0.5	0.41	0.5	0.21
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **21**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 11/8/04
Weather: Partly cloudy, ~20°s F **Gage reader:** RRE
Location: STRE002

Start time: 1450 RP start (ft): 3.05

Finish time: 1515 RP end (ft): 3.05

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	1.5	0.7	0.07	1.1	0.07
4.0	1.0	1.4	0.42	1.4	0.59
5.0	0.9	1.5	1.00	1.4	1.35
5.8	0.8	1.5	1.24	1.2	1.49
6.6	0.8	1.4	1.70	1.1	1.90
7.4	0.8	1.3	1.82	1.0	1.89
8.2	0.8	1.3	1.40	1.0	1.46
9.0	0.8	1.5	1.26	1.2	1.51
9.8	0.8	1.4	1.09	1.1	1.22
10.6	0.8	0.9	1.47	0.7	1.06
11.4	0.8	1.2	1.06	1.0	1.02
12.2	0.8	1.2	1.14	1.0	1.09
13.0	0.8	1.2	0.93	1.0	0.89
13.8	0.8	0.9	0.62	0.7	0.45
14.6	0.8	0.9	0.51	0.7	0.37
15.4	0.8	0.7	0.59	0.6	0.33
16.2	0.8	0.7	0.34	0.6	0.19
17.0	0.9	0.5	0.35	0.5	0.16
18.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **17**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Calm, flurries, overcast, ~30°s F
Location: STRE002

Date: 12/1/04
Gage reader: RRE/KMP

Troll
33.86

Start time: 1200 RP start (ft): 3.00

67.4

Finish time: 1225 RP end (ft): NM

Inst. read (ft): 2.994

Remarks: Water has been ~0.5' higher recently based on observation of banks.

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	1.5	0.7	0.90	1.1	0.95
3.0	1.0	0.7	0.90	0.7	0.63
4.0	1.0	1.5	0.58	1.5	0.87
5.0	0.8	1.6	1.06	1.2	1.27
5.5	0.5	1.5	1.12	0.8	0.84
6.0	0.5	1.5	1.33	0.8	1.00
6.5	0.5	1.5	1.39	0.8	1.04
7.0	0.5	1.5	1.35	0.8	1.01
7.5	0.5	1.1	1.35	0.6	0.74
8.0	0.5	1.2	1.30	0.6	0.78
8.5	0.5	1.4	1.33	0.7	0.93
9.0	0.5	1.4	1.41	0.7	0.99
9.5	0.5	1.4	1.23	0.7	0.86
10.0	0.5	1.3	1.27	0.7	0.83
10.5	0.5	1.1	1.46	0.6	0.80
11.0	0.5	1.4	0.64	0.7	0.45
11.5	0.5	1.3	1.24	0.7	0.81
12.0	0.5	1.2	0.95	0.6	0.57
12.5	0.5	1.3	1.00	0.7	0.65
13.0	0.5	1.2	0.96	0.6	0.58
13.5	0.5	0.8	0.82	0.4	0.33
14.0	0.5	0.9	0.65	0.5	0.29
14.5	0.5	0.8	0.72	0.4	0.29
15.0	0.8	0.8	0.60	0.6	0.36
16.0	1.0	0.6	0.48	0.6	0.29
17.0	1.0	0.5	0.49	0.5	0.25
18.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **18**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 3/17/05
Weather: Overcast, light breeze, ~20°s F **Gage reader:** RRE
Location: STRE002

Start time: 1250 RP start (ft): 2.94

Finish time: 1315 RP end (ft): 2.96

Inst. read (ft): 3.099

Remarks: Field observations suggest stage was ~1.2' higher recently.
Possible backup from ice buildup during previous cold period.

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
-1.0	0.5	0.0	0.00	0.0	0.0
0.0	1.0	0.7	0.24	0.7	0.2
1.0	1.0	1.0	0.40	1.0	0.4
2.0	1.0	1.3	0.42	1.3	0.5
3.0	1.0	1.5	0.77	1.5	1.2
4.0	0.8	1.5	1.12	1.2	1.3
4.6	0.6	1.5	1.37	0.9	1.2
5.2	0.6	1.5	1.63	0.9	1.5
5.8	0.6	1.1	1.76	0.7	1.2
6.4	0.6	1.3	1.58	0.8	1.2
7.0	0.6	1.5	1.57	0.9	1.4
7.6	0.6	1.4	1.33	0.8	1.1
8.2	0.6	1.3	1.43	0.8	1.1
8.8	0.6	1.0	1.71	0.6	1.0
9.4	0.6	1.3	0.83	0.8	0.6
10.0	0.6	1.3	1.63	0.8	1.3
10.6	0.6	1.3	1.15	0.8	0.9
11.2	0.6	1.2	1.04	0.7	0.7
11.8	0.6	0.8	1.01	0.5	0.5
12.4	0.6	0.8	0.79	0.5	0.4
13.0	0.8	0.8	0.82	0.6	0.5
14.0	1.0	0.8	0.63	0.8	0.5
15.0	1.0	0.5	0.44	0.5	0.2
16.0	0.5	0.0	0.00	0.0	0.0

Total Flow: **19**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/2/05
Weather: Clear, light breeze, ~40°s F **Gage reader:** RRE
Location: STRE002

Start time: 1056 RP start (ft): 2.38

Finish time: 1120 RP end (ft): 2.38

Inst. read (ft): 2.399

Remarks: Ice free.

Meter units: ft/sec

Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	1.5	1.1	0.64	1.7	1.06
3.0	1.0	1.5	0.62	1.5	0.93
4.0	1.0	1.9	0.76	1.9	1.44
5.0	0.8	2.2	1.50	1.7	2.48
5.5	0.5	2.1	1.61	1.1	1.69
6.0	0.5	2.1	2.23	1.1	2.34
6.5	0.5	2.1	2.61	1.1	2.74
7.0	0.5	2.1	2.91	1.1	3.06
7.5	0.5	2.1	3.17	1.1	3.33
8.0	0.5	2.1	3.19	1.1	3.35
8.5	0.5	1.8	3.12	0.9	2.81
9.0	0.5	1.9	2.76	1.0	2.62
9.5	0.5	2.1	2.68	1.1	2.81
10.0	0.5	2.0	2.32	1.0	2.32
10.5	0.5	2.0	2.18	1.0	2.18
11.0	0.5	1.8	2.17	0.9	1.95
11.5	0.5	1.9	1.66	1.0	1.58
12.0	0.5	1.9	1.95	1.0	1.85
12.5	0.5	1.9	2.10	1.0	2.00
13.0	0.5	1.8	2.26	0.9	2.03
13.5	0.5	1.9	2.33	1.0	2.21
14.0	0.5	1.6	2.04	0.8	1.63
14.5	0.5	1.2	2.00	0.6	1.20
15.0	0.5	1.2	1.93	0.6	1.16
15.5	0.5	1.2	1.78	0.6	1.07
16.0	0.8	1.2	1.64	0.9	1.48
17.0	1.0	1.2	1.26	1.2	1.51
18.0	1.0	1.0	1.38	1.0	1.38
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **56**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/7/05
Weather: Clear, mild, ~50°s F **Gage reader:** RRE
Location: STRE002

Start time: 1310 RP start (ft): 2.09

Finish time: 1330 RP end (ft): 2.09

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	1.0	0.6	0.18	0.6	0.11
3.0	1.0	1.3	0.25	1.3	0.33
4.0	1.0	1.7	0.52	1.7	0.88
5.0	1.0	2.0	0.73	2.0	1.46
6.0	1.0	2.4	1.01	2.4	2.42
7.0	1.0	2.5	1.98	2.5	4.95
8.0	1.0	2.4	3.13	2.4	7.51
9.0	1.0	2.2	3.34	2.2	7.35
10.0	1.0	2.3	3.54	2.3	8.14
11.0	1.0	2.3	3.32	2.3	7.64
12.0	1.0	2.3	3.28	2.3	7.54
13.0	1.0	2.0	2.91	2.0	5.82
14.0	1.0	1.9	2.99	1.9	5.68
15.0	1.0	2.2	2.90	2.2	6.38
16.0	1.0	2.0	2.62	2.0	5.24
17.0	1.0	1.8	2.45	1.8	4.41
18.0	1.0	1.7	2.08	1.7	3.54
19.0	1.0	1.5	1.52	1.5	2.28
20.0	1.0	1.2	1.55	1.2	1.86
21.0	0.5	0.8	0.62	0.4	0.25

Total Flow: **84**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/21/05
Weather: Breezy, ~40°s F **Gage reader:** RRE
Location: STRE002

Start time: 1500 RP start (ft): 2.87

Finish time: 1530 RP end (ft): 2.85

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	1.5	0.3	0.14	0.5	0.06
4.0	1.0	0.8	0.16	0.8	0.13
5.0	1.0	1.6	0.63	1.6	1.01
6.0	0.8	1.6	1.23	1.3	1.57
6.6	0.6	1.6	1.51	1.0	1.45
7.2	0.6	1.5	1.96	0.9	1.76
7.8	0.6	1.7	2.20	1.0	2.24
8.4	0.6	1.3	2.20	0.8	1.72
9.0	0.6	1.3	2.20	0.8	1.72
9.6	0.6	1.6	1.76	1.0	1.69
10.2	0.6	1.5	1.51	0.9	1.36
10.8	0.6	1.4	1.70	0.8	1.43
11.4	0.6	1.2	2.00	0.7	1.44
12.0	0.8	1.4	1.08	1.1	1.21
13.0	1.0	1.3	1.52	1.3	1.98
14.0	1.0	1.2	1.38	1.2	1.66
15.0	1.0	0.7	1.41	0.7	0.99
16.0	1.0	0.7	1.03	0.7	0.72
17.0	1.0	0.7	0.67	0.7	0.47
18.0	1.0	0.6	0.47	0.6	0.28
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **25**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 6/1/05
Weather: Clear, ~70°s F **Gage reader:** RRE
Location: STRE002

Start time: 1625 RP start (ft): 3.03

Finish time: 1705 RP end (ft): 3.03

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	1.0	0.4	0.21	0.4	0.08
3.0	1.0	0.6	0.27	0.6	0.16
4.0	1.0	0.6	0.52	0.6	0.31
5.0	0.8	1.4	0.96	1.1	1.08
5.6	0.6	1.4	1.17	0.8	0.98
6.2	0.6	1.5	1.45	0.9	1.31
6.8	0.6	1.5	1.54	0.9	1.39
7.4	0.6	1.4	1.55	0.8	1.30
8.0	0.6	1.4	1.32	0.8	1.11
8.6	0.6	1.4	1.07	0.8	0.90
9.2	0.6	1.2	1.21	0.7	0.87
9.8	0.6	1.3	1.08	0.8	0.84
10.4	0.6	1.3	1.08	0.8	0.84
11.0	0.6	1.2	1.31	0.7	0.94
11.6	0.6	1.0	1.32	0.6	0.79
12.2	0.6	1.2	0.74	0.7	0.53
12.8	0.6	1.2	1.00	0.7	0.72
13.4	0.6	1.1	0.79	0.7	0.52
14.0	0.8	1.0	0.66	0.8	0.53
15.0	1.0	0.6	0.58	0.6	0.35
16.0	1.0	0.5	0.69	0.5	0.35
17.0	1.0	0.5	0.58	0.5	0.29
18.0	1.0	0.4	0.50	0.4	0.20
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **16**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 6/20/05
Weather: Sunny, ~80°s F **Gage Reader:** RRE
Location: STRE002

Start time: 1432 RP start (ft): 3.01

Finish time: 1510 RP end (ft): 3.01

Inst. read: NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	0.5	0.0	0.00	0.0	0.00
3.0	1.0	0.7	0.50	0.7	0.35
4.0	1.0	0.7	0.71	0.7	0.50
5.0	0.7	1.5	0.97	1.1	1.02
5.4	0.4	1.5	1.03	0.6	0.62
5.8	0.4	1.5	1.16	0.6	0.70
6.2	0.4	1.5	1.36	0.6	0.82
6.6	0.4	1.5	1.28	0.6	0.77
7.0	0.4	1.5	1.45	0.6	0.87
7.4	0.4	1.4	1.39	0.6	0.78
7.8	0.4	1.5	1.36	0.6	0.82
8.2	0.4	1.3	1.40	0.5	0.73
8.6	0.4	1.1	1.42	0.4	0.62
9.0	0.4	1.1	1.30	0.4	0.57
9.4	0.4	1.2	1.28	0.5	0.61
9.8	0.4	1.3	1.29	0.5	0.67
10.2	0.4	1.4	1.27	0.6	0.71
10.6	0.4	1.3	1.09	0.5	0.57
11.0	0.4	1.3	1.12	0.5	0.58
11.4	0.4	0.9	1.30	0.4	0.46
11.8	0.4	0.9	1.19	0.4	0.43
12.2	0.4	1.1	0.43	0.4	0.19
12.6	0.4	1.2	1.01	0.5	0.48
13.0	0.4	1.2	0.96	0.5	0.46
13.4	0.4	1.1	0.86	0.4	0.38
13.8	0.4	1.2	0.75	0.5	0.36
14.2	0.4	1.2	0.70	0.5	0.34
14.6	0.4	0.8	0.67	0.3	0.21
15.0	0.7	0.6	0.70	0.4	0.29
16.0	1.0	0.5	0.55	0.5	0.28
17.0	1.0	0.5	0.57	0.5	0.29
18.0	1.0	0.5	0.56	0.5	0.28
19.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **17**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Sunny, calm, ~80°s F
Location: STRM004
(Formerly STR003)

Date: 8/14/03
Gage reader: DWW/JGM

Start time: 1255 RP start (ft): NA

Finish time: NM RP end (ft): NA

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	1.2	0.50	0.3	0.15
0.5	0.8	1.2	1.20	0.9	1.08
1.5	1.0	0.8	1.00	0.8	0.75
2.5	1.0	0.7	1.02	0.7	0.66
3.5	1.0	0.5	1.10	0.5	0.55
4.5	1.0	0.5	0.81	0.5	0.36
5.5	1.0	0.4	0.90	0.4	0.36
6.5	0.8	0.4	0.85	0.3	0.22
7.0	0.5	0.3	0.20	0.1	0.03
7.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **4.2**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 8/23/04
Weather: Light breeze, ~50°s F **Gage reader:** RRE
Location: STRM004

Start time: 1514 RP start (ft): 3.69

Finish time: 1540 RP end (ft): 3.69

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	2.0	0.8	-0.07	1.6	-0.11
4.0	1.5	1.2	0.05	1.8	0.09
5.0	1.0	0.8	0.10	0.8	0.08
6.0	1.0	0.7	0.19	0.7	0.13
7.0	1.0	0.9	0.40	0.9	0.36
8.0	1.0	1.0	0.71	1.0	0.71
9.0	0.8	1.1	1.26	0.8	1.04
9.5	0.5	1.0	1.21	0.5	0.61
10.0	0.5	1.0	1.50	0.5	0.75
10.5	0.5	1.0	1.40	0.5	0.70
11.0	0.5	1.0	0.88	0.5	0.44
11.5	0.5	0.9	0.77	0.5	0.35
12.0	0.5	0.9	0.90	0.5	0.41
12.5	0.5	0.8	0.91	0.4	0.36
13.0	0.5	0.8	0.78	0.4	0.31
13.5	0.5	0.7	0.60	0.4	0.21
14.0	0.8	0.7	0.25	0.5	0.13
15.0	1.0	0.6	0.40	0.6	0.24
16.0	1.0	0.5	-0.17	0.5	-0.09
17.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **6.7**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Partly cloudy, ~60°s F
Location: STRM004

Date: 8/25/04
Gage Reader: RRE

Start time: 1515 RP start (ft): 3.73

Finish time: 1545 RP end (ft): 3.72

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	2.0	0.8	0.12	1.6	0.19
4.0	1.5	1.2	0.03	1.8	0.05
5.0	1.0	0.9	0.16	0.9	0.14
6.0	1.0	0.8	0.38	0.8	0.30
7.0	0.8	0.9	0.72	0.7	0.49
7.5	0.5	1.0	0.96	0.5	0.48
8.0	0.5	1.0	1.17	0.5	0.59
8.5	0.5	1.0	1.00	0.5	0.50
9.0	0.5	1.0	1.31	0.5	0.66
9.5	0.5	1.1	1.27	0.6	0.70
10.0	0.5	1.0	1.26	0.5	0.63
10.5	0.5	1.0	1.20	0.5	0.60
11.0	0.5	1.0	0.78	0.5	0.39
11.5	0.5	0.9	0.60	0.5	0.27
12.0	0.5	0.8	0.30	0.4	0.12
12.5	0.5	0.8	0.18	0.4	0.07
13.0	0.8	0.7	0.08	0.5	0.04
14.0	1.5	0.7	0.01	1.1	0.01
16.0	2.0	0.5	0.20	1.0	0.20
18.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **6.4**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Cloudy, ~50°s F
Location: STRM004

Date: 9/1/04
Gage Reader: RRE

Start time: 1425 RP start (ft): 3.75

Finish time: 1444 RP end (ft): 3.75

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	1.0	0.2	0.04	0.2	0.01
3.0	1.0	0.4	0.06	0.4	0.02
4.0	1.0	0.4	0.16	0.4	0.06
5.0	1.0	0.6	0.27	0.6	0.16
6.0	0.8	0.7	0.42	0.5	0.22
6.5	0.5	0.9	0.50	0.5	0.23
7.0	0.5	0.9	0.74	0.5	0.33
7.5	0.5	1.1	0.78	0.6	0.43
8.0	0.5	1.2	0.87	0.6	0.52
8.5	0.5	1.2	1.01	0.6	0.61
9.0	0.5	1.2	0.60	0.6	0.36
9.5	0.5	1.1	0.40	0.6	0.22
10.0	0.5	1.1	0.64	0.6	0.35
10.5	0.5	1.0	0.95	0.5	0.48
11.0	0.5	0.9	0.65	0.5	0.29
11.5	0.5	0.9	0.25	0.5	0.11
12.0	0.8	0.9	0.26	0.7	0.18
13.0	1.0	0.9	0.05	0.9	0.05
14.0	1.0	0.7	0.06	0.7	0.04
15.0	1.0	0.5	0.00	0.5	0.00
16.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **4.7**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Cloudy, light rain, ~60°s F
Location: STRM004

Date: 9/15/04
Gage Reader: RRE

Start time: 1210 RP start (ft): 3.54

Finish time: 1230 RP end (ft): 3.53

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.5	0.0	0.00	0.0	0.00
3.0	2.0	0.7	0.01	1.4	0.01
4.0	1.0	0.8	0.17	0.8	0.14
5.0	1.0	0.7	0.35	0.7	0.25
6.0	1.0	0.8	0.54	0.8	0.43
7.0	1.0	1.1	0.86	1.1	0.95
8.0	1.0	1.3	1.13	1.3	1.47
9.0	1.0	1.4	0.98	1.4	1.37
10.0	1.0	1.4	0.92	1.4	1.29
11.0	1.0	1.4	0.84	1.4	1.18
12.0	1.0	1.2	1.12	1.2	1.34
13.0	1.0	1.2	0.52	1.2	0.62
14.0	1.0	1.1	0.04	1.1	0.04
15.0	1.0	0.9	0.02	0.9	0.02
16.0	1.0	0.7	0.11	0.7	0.08
17.0	1.0	0.2	0.23	0.2	0.05
18.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **9.2**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, sunny, ~50°s F
Location: STRM004

Date: 9/29/04
Gage Reader: RRE

Start time: 1528 RP start (ft): 3.72

Finish time: 1540 RP end (ft): 3.72

Inst. read (ft): 3.738

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.00	0.0	0.00
2.0	1.5	0.4	0.00	0.00	0.6	0.00
4.0	1.5	0.4	0.02	0.07	0.6	0.04
5.0	1.0	0.6	0.06	0.20	0.6	0.12
6.0	1.0	0.7	0.09	0.30	0.7	0.21
7.0	0.8	0.9	0.14	0.46	0.7	0.31
7.5	0.5	1.0	0.18	0.59	0.5	0.30
8.0	0.5	1.0	0.18	0.59	0.5	0.30
8.5	0.5	1.2	0.24	0.79	0.6	0.47
9.0	0.5	1.1	0.28	0.92	0.6	0.51
9.5	0.5	1.1	0.26	0.85	0.6	0.47
10.0	0.5	1.1	0.24	0.79	0.6	0.43
10.5	0.5	0.8	0.24	0.79	0.4	0.31
11.0	0.5	0.8	0.23	0.75	0.4	0.30
11.5	0.5	0.8	0.12	0.39	0.4	0.16
12.0	0.8	0.9	0.06	0.20	0.7	0.13
13.0	1.0	0.9	0.05	0.16	0.9	0.15
14.0	1.5	0.8	0.01	0.03	1.2	0.04
16.0	2.0	0.4	0.00	0.00	0.8	0.00
18.0	1.0	0.0	0.00	0.00	0.0	0.00

Total Flow: **4.2**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Cloudy, ~40°s F
Location: STRM004

Date: 10/25/04
Gage Reader: RRE

Start time: 1030 RP start (ft): 3.38

Finish time: 1100 RP end (ft): 3.38

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	1.5	0.7	0.04	1.1	0.04
4.0	1.0	0.8	0.24	0.8	0.19
5.0	1.0	0.8	0.41	0.8	0.33
6.0	0.8	0.9	0.64	0.7	0.43
6.5	0.5	0.9	0.72	0.5	0.32
7.0	0.5	1.0	0.86	0.5	0.43
7.5	0.5	1.1	0.97	0.6	0.53
8.0	0.5	1.1	0.97	0.6	0.53
8.5	0.5	1.1	0.95	0.6	0.52
9.0	0.5	1.1	0.96	0.6	0.53
9.5	0.5	1.2	0.88	0.6	0.53
10.0	0.5	1.3	0.88	0.7	0.57
10.5	0.5	1.3	0.88	0.7	0.57
11.0	0.5	1.3	0.85	0.7	0.55
11.5	0.5	1.1	0.78	0.6	0.43
12.0	0.5	1.1	0.73	0.6	0.40
12.5	0.5	1.2	0.45	0.6	0.27
13.0	0.5	1.2	0.38	0.6	0.23
13.5	0.5	1.2	0.24	0.6	0.14
14.0	0.8	1.1	0.22	0.8	0.18
15.0	1.5	1.1	0.04	1.7	0.07
17.0	2.0	0.4	0.13	0.8	0.10
19.0	2.0	0.4	0.08	0.8	0.06
21.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **8.0**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Partly cloudy, ~20°s F
Location: STRM004

Date: 11/8/04
Gage reader: RRE

Start time: 1245 RP start (ft): 3.57

Finish time: 1310 RP end (ft): 3.57

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	2.0	0.5	0.11	1.0	0.11
4.0	1.0	0.6	0.08	0.6	0.05
5.0	1.0	0.6	0.23	0.6	0.14
6.0	1.0	0.7	0.41	0.7	0.29
6.5	0.5	0.8	0.51	0.4	0.20
7.0	0.5	0.8	0.54	0.4	0.22
7.5	0.5	0.8	0.57	0.4	0.23
8.0	0.5	0.8	0.70	0.4	0.28
8.5	0.5	0.8	0.83	0.4	0.33
9.0	0.5	0.8	0.95	0.4	0.38
9.5	0.5	1.0	0.98	0.5	0.49
10.0	0.5	1.1	0.97	0.6	0.53
10.5	0.5	1.2	0.80	0.6	0.48
11.0	0.5	1.2	0.79	0.6	0.47
11.5	0.5	1.1	0.83	0.6	0.46
12.0	0.5	1.0	1.02	0.5	0.51
12.5	0.5	1.0	0.50	0.5	0.25
13.0	0.5	0.9	0.42	0.5	0.19
13.5	0.5	0.9	0.39	0.5	0.18
14.0	0.5	1.0	0.42	0.5	0.21
15.0	1.0	1.0	0.03	1.0	0.03
17.0	2.0	0.3	0.07	0.6	0.04
19.0	2.0	0.0	0.00	0.0	0.00

Total Flow: **6.1**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle EBS
Weather: Calm, flurries, overcast, ~30°s F
Location: STRM004

Date: 12/1/04
Gage Reader: RRE

Start time: 1345 RP start (ft): 3.56

Finish time: 1405 RP end (ft): NM

Inst. read (ft): 3.574

Remarks: Channel bed has filled in significantly since beginning of flow measurements, ~0.5 ft sediment deposition.

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	WIdth (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	1.5	0.6	-0.03	0.9	-0.03
4.0	1.0	0.6	0.06	0.6	0.04
5.0	1.0	0.7	0.17	0.7	0.12
6.0	1.0	0.7	0.29	0.7	0.20
7.0	0.7	0.8	0.51	0.6	0.29
7.4	0.4	0.8	0.52	0.3	0.17
7.8	0.4	0.8	0.69	0.3	0.22
8.2	0.4	0.9	0.69	0.4	0.25
8.6	0.4	1.0	0.74	0.4	0.30
9.0	0.4	1.0	0.77	0.4	0.31
9.4	0.4	1.1	0.85	0.4	0.37
9.8	0.4	1.2	0.91	0.5	0.44
10.2	0.4	1.3	0.97	0.5	0.50
10.6	0.4	1.3	0.67	0.5	0.35
11.0	0.4	1.4	0.72	0.6	0.40
11.4	0.4	1.2	0.75	0.5	0.36
11.8	0.4	1.2	0.83	0.5	0.40
12.2	0.4	1.1	0.80	0.4	0.35
12.6	0.4	1.1	0.54	0.4	0.24
13.0	0.7	1.0	0.36	0.7	0.25
14.0	1.0	1.1	0.47	1.1	0.52
15.0	1.0	1.0	0.04	1.0	0.04
16.0	1.5	0.6	-0.15	0.9	-0.14
18.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **5.9**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 3/17/05
Weather: Overcast, flurries, ~20°s F **Gage reader:** RRE
Location: STRM004

Start time: 1130 RP start (ft): 3.76

Finish time: 1145 RP end (ft): 3.74

Inst. read (ft): 3.847

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
3.0	0.5	0.0	0.00	0.0	0.00
4.0	1.0	0.6	0.06	0.6	0.04
5.0	1.0	1.0	0.17	1.0	0.17
6.0	1.0	0.9	0.27	0.9	0.24
7.0	0.8	0.9	0.43	0.7	0.29
7.5	0.5	0.9	0.54	0.5	0.24
8.0	0.5	1.0	0.71	0.5	0.36
8.5	0.5	1.0	0.74	0.5	0.37
9.0	0.5	1.1	0.93	0.6	0.51
9.5	0.5	1.1	1.10	0.6	0.61
10.0	0.5	1.0	0.94	0.5	0.47
10.5	0.5	1.0	0.80	0.5	0.40
11.0	0.5	0.9	0.58	0.5	0.26
11.5	0.5	0.9	0.34	0.5	0.15
12.0	0.8	0.7	0.24	0.5	0.13
13.0	1.0	0.7	0.52	0.7	0.36
14.0	1.0	0.5	0.29	0.5	0.15
15.0	1.0	0.5	0.02	0.5	0.01
16.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **4.8**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/2/05
Weather: Overcast, flurries, ~20°s F **Gage reader:** RRE
Location: STRM004

Start time: 0953 RP start (ft): 3.08

Finish time: 1015 RP end (ft): 3.06

Inst. read (ft): 3.08

Remarks: Ice free.

Meter units: ft/sec

Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	1.5	0.6	0.02	0.9	0.02
4.0	1.0	1.0	0.18	1.0	0.18
5.0	1.0	1.1	0.30	1.1	0.33
6.0	0.8	1.4	0.61	1.1	0.64
6.5	0.5	1.5	0.85	0.8	0.64
7.0	0.5	1.6	0.91	0.8	0.73
7.5	0.5	1.6	1.20	0.8	0.96
8.0	0.5	1.6	1.34	0.8	1.07
8.5	0.5	1.7	1.32	0.9	1.12
9.0	0.5	1.7	1.40	0.9	1.19
9.5	0.5	1.8	1.31	0.9	1.18
10.0	0.5	1.9	1.22	1.0	1.16
10.5	0.5	1.9	1.15	1.0	1.09
11.0	0.5	2.0	1.08	1.0	1.08
11.5	0.5	2.0	0.94	1.0	0.94
12.0	0.5	1.9	0.96	1.0	0.91
12.5	0.5	1.8	0.89	0.9	0.80
13.0	0.5	1.7	0.90	0.9	0.77
13.5	0.5	1.6	0.74	0.8	0.59
14.0	0.8	1.5	0.44	1.1	0.50
15.0	1.0	1.4	0.19	1.4	0.27
16.0	1.0	1.3	0.17	1.3	0.22
17.0	1.0	1.1	-0.04	1.1	-0.04
18.0	1.0	1.0	-0.04	1.0	-0.04
19.0	1.0	0.7	-0.01	0.7	-0.01
20.0	1.0	0.6	-0.14	0.6	-0.08
21.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **16**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/6/05
Weather: Rain, ~30°s F **Gage reader:** RRE
Location: STRM004

Start time: 1310 RP start (ft): 2.53

Finish time: 1350 RP end (ft): 2.42

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00		0.0	0.00
3.0	1.5	0.7	-0.16		1.1	-0.17
4.0	1.0	0.9	-0.11		0.9	-0.10
5.0	1.0	1.2	0.17		1.2	0.20
6.0	1.0	1.6	0.76		1.6	1.22
7.0	0.8	1.9	1.14		1.5	1.73
7.6	0.6	2.0	1.52		1.2	1.82
8.2	0.6	2.1	1.96		1.3	2.47
8.8	0.6	2.2	2.43		1.3	3.21
9.4	0.6	2.3	2.43		1.4	3.35
10.0	0.6	2.4	2.15	2.58	1.4	3.41
10.6	0.6	2.5	1.97	2.54	1.5	3.38
11.2	0.6	2.5	1.87	2.58	1.5	3.34
11.8	0.6	2.5	1.65	2.77	1.5	3.32
12.4	0.6	2.5	1.46	2.63	1.5	3.07
13.0	0.6	2.5	1.69	2.48	1.5	3.13
13.6	0.6	2.1	2.25		1.3	2.84
14.2	0.6	2.1	2.38		1.3	3.00
14.8	0.6	2.2	1.95		1.3	2.57
15.4	0.6	2.2	1.85		1.3	2.44
16.0	0.8	2.2	1.10		1.8	1.94
17.0	1.0	2.1	0.92		2.1	1.93
18.0	1.0	2.1	0.17		2.1	0.36
19.0	1.0	1.9	0.35		1.9	0.67
20.0	1.0	1.4	0.23		1.4	0.32
21.0	1.0	1.4	0.01		1.4	0.01
22.0	1.0	1.4	0.01		1.4	0.01
23.0	0.5	0.0	0.00		0.0	0.00

Total Flow: **49**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/21/05
Weather: Breezy, ~40°s F **Gage reader:** RRE
Location: STRM004

Start time: 1400 RP start (ft): 3.45

Finish time: 1420 RP end (ft): 3.45

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	0.5	0.0	0.00	0.0	0.00
3.0	1.0	0.6	0.00	0.6	0.00
4.0	1.0	0.8	0.12	0.8	0.10
5.0	1.0	1.1	0.18	1.1	0.20
6.0	0.8	1.3	0.46	1.0	0.45
6.5	0.5	1.3	0.52	0.7	0.34
7.0	0.5	1.4	0.70	0.7	0.49
7.5	0.5	1.5	0.78	0.8	0.59
8.0	0.5	1.5	0.84	0.8	0.63
8.5	0.5	1.5	0.97	0.8	0.73
9.0	0.5	1.4	1.08	0.7	0.76
9.5	0.5	1.5	0.95	0.8	0.71
10.0	0.5	1.5	1.03	0.8	0.77
10.5	0.5	1.0	1.11	0.5	0.56
11.0	0.5	1.0	1.14	0.5	0.57
11.5	0.5	1.3	0.97	0.7	0.63
12.0	0.5	1.2	0.88	0.6	0.53
12.5	0.5	1.2	0.67	0.6	0.40
13.0	0.8	1.1	0.76	0.8	0.63
14.0	1.0	1.0	0.42	1.0	0.42
15.0	1.0	0.8	0.18	0.8	0.14
16.0	1.5	0.3	-0.24	0.5	-0.11
18.0	2.0	0.0	-0.13	0.0	0.00
20.0	1.0	1.9	0.00	1.9	0.00

Total Flow: **10**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, ~70°s F
Location: STRM004

Date: 6/1/05
Gage reader: RRE

Start time: 1500 RP start (ft): 3.75

Finish time: 1530 RP end (ft): 3.76

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	1.5	0.6	0.03	0.9	0.03
4.0	1.0	0.7	0.05	0.7	0.04
5.0	1.0	0.9	0.16	0.9	0.14
6.0	0.8	1.0	0.31	0.8	0.23
6.5	0.5	1.1	0.35	0.6	0.19
7.0	0.5	1.1	0.51	0.6	0.28
7.5	0.5	1.1	0.75	0.6	0.41
8.0	0.5	1.1	0.84	0.6	0.46
8.5	0.5	1.1	1.08	0.6	0.59
9.0	0.5	1.2	0.84	0.6	0.50
9.5	0.5	0.7	1.15	0.4	0.40
10.0	0.5	0.7	1.12	0.4	0.39
10.5	0.5	1.0	0.93	0.5	0.47
11.0	0.5	0.9	0.79	0.5	0.36
11.5	0.5	0.9	0.46	0.5	0.21
12.0	0.8	0.9	0.29	0.7	0.20
13.0	1.0	0.9	0.46	0.9	0.41
14.0	1.0	0.7	0.30	0.7	0.21
15.0	1.0	0.5	0.22	0.5	0.11
16.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **5.6**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 9/2/04
Weather: Overcast, calm, ~50°s F **Gage Reader:** RRE
Location: STRM005

Start time: 0900 RP start (ft): 2.18

Finish time: 0920 RP end (ft): NM

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	1.0	0.0	0.00	0.0	0.00
3.0	2.0	0.6	0.12	1.2	0.14
5.0	2.0	0.6	0.51	1.2	0.61
7.0	2.0	0.7	0.37	1.4	0.52
9.0	2.0	0.8	0.55	1.6	0.88
11.0	2.0	0.8	0.61	1.6	0.98
13.0	2.0	1.1	0.67	2.2	1.47
15.0	2.0	1.2	0.64	2.4	1.54
17.0	2.0	1.4	0.71	2.8	1.99
19.0	2.0	1.4	0.78	2.8	2.18
21.0	2.0	1.5	0.84	3.0	2.52
23.0	2.0	1.5	0.85	3.0	2.55
25.0	2.0	1.6	0.81	3.2	2.59
27.0	2.0	1.6	0.74	3.2	2.37
29.0	2.0	1.6	0.84	3.2	2.69
31.0	2.0	1.6	0.84	3.2	2.69
33.0	2.0	1.7	0.87	3.4	2.96
35.0	1.5	1.7	0.68	2.6	1.73
36.0	1.5	1.7	0.38	2.6	0.97
38.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **31**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 9/15/04
Weather: Cloudy, rainy, ~60°s F **Gage Reader:** RRE
Location: STRM005

Start time: 0820 RP start (ft): 2.38

Finish time: 0855 RP end (ft): 2.39

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	1.2	0.27	1.2	0.32
2.0	2.0	1.2	0.58	2.4	1.39
4.0	2.0	1.1	0.76	2.2	1.67
6.0	2.0	1.2	0.97	2.4	2.33
8.0	2.0	1.3	1.02	2.6	2.65
10.0	2.0	1.3	0.98	2.6	2.55
12.0	2.0	1.2	1.00	2.4	2.40
14.0	2.0	1.2	1.01	2.4	2.42
16.0	2.0	1.3	0.96	2.6	2.50
18.0	2.0	1.3	1.06	2.6	2.76
20.0	2.0	1.3	1.05	2.6	2.73
22.0	2.0	1.4	0.97	2.8	2.72
24.0	2.0	1.3	0.98	2.6	2.55
26.0	2.0	1.3	0.98	2.6	2.55
28.0	2.0	1.3	0.93	2.6	2.42
30.0	2.0	1.2	0.87	2.4	2.09
32.0	2.0	1.2	0.43	2.4	1.03
34.0	2.0	1.1	0.86	2.2	1.89
36.0	2.0	0.9	0.60	1.8	1.08
38.0	2.0	0.5	0.70	1.0	0.70
40.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **41**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, sunny, ~50°s F
Location: STRM005

Date: 9/29/04
Gage Reader: RRE

Start time: 1010 RP start (ft): 2.25

Finish time: 1030 RP end (ft): 2.24

Inst. read (ft): 2.242

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	1.0	0.07	0.23	1.0	0.23
2.0	2.0	1.0	0.14	0.46	2.0	0.92
4.0	2.0	0.9	0.20	0.66	1.8	1.18
6.0	2.0	1.0	0.27	0.89	2.0	1.77
8.0	2.0	1.1	0.29	0.95	2.2	2.09
10.0	2.0	1.2	0.29	0.95	2.4	2.28
12.0	2.0	1.3	0.29	0.95	2.6	2.47
14.0	2.0	1.3	0.28	0.92	2.6	2.39
16.0	2.0	1.2	0.25	0.82	2.4	1.97
18.0	2.0	1.2	0.22	0.72	2.4	1.73
20.0	2.0	1.2	0.26	0.85	2.4	2.05
22.0	2.0	1.2	0.27	0.89	2.4	2.13
24.0	2.0	1.2	0.29	0.95	2.4	2.28
26.0	2.0	1.2	0.27	0.89	2.4	2.13
28.0	2.0	1.2	0.26	0.85	2.4	2.05
30.0	2.0	1.1	0.27	0.89	2.2	1.95
32.0	2.0	1.0	0.25	0.82	2.0	1.64
34.0	2.0	1.0	0.22	0.72	2.0	1.44
36.0	2.0	0.7	0.19	0.62	1.4	0.87
38.0	2.0	0.4	0.16	0.52	0.8	0.42
40.0	1.0	0.0	0.00	0.00	0.0	0.00

Total Flow: **34**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 10/25/04
Weather: Cloudy, ~40°s F **Gage Reader:** RRE
Location: STRM005

Start time: 0845 RP start (ft): 2.86

Finish time: 0915 RP end (ft): 2.86

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	1.7	0.08	1.7	0.14
2.0	2.0	1.7	0.27	3.4	0.92
4.0	2.0	1.6	0.51	3.2	1.63
6.0	2.0	1.7	0.81	3.4	2.75
8.0	2.0	1.8	0.77	3.6	2.77
10.0	2.0	1.8	0.88	3.6	3.17
12.0	2.0	1.9	0.88	3.8	3.34
14.0	2.0	1.9	0.91	3.8	3.46
16.0	2.0	1.8	0.84	3.6	3.02
18.0	2.0	1.8	0.84	3.6	3.02
20.0	2.0	1.8	0.71	3.6	2.56
22.0	2.0	1.9	0.81	3.8	3.08
24.0	2.0	1.9	0.76	3.8	2.89
26.0	2.0	1.8	0.85	3.6	3.06
28.0	2.0	1.8	0.81	3.6	2.92
30.0	2.0	1.7	0.63	3.4	2.14
32.0	2.0	1.6	0.57	3.2	1.82
34.0	2.0	1.5	0.58	3.0	1.74
36.0	2.0	1.2	0.40	2.4	0.96
38.0	2.0	1.0	0.47	2.0	0.94
40.0	2.0	0.6	0.32	1.2	0.38
42.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **47**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 11/8/04
Weather: Light Snow **Gage reader:** RRE
Location: STRM005

Start time: 0916 RP start (ft): 2.64

Finish time: 0936 RP end (ft): 2.64

Inst. read (ft): NM

Photographs:
Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	1.5	0.08	1.5	0.12
2.0	2.0	1.6	0.31	3.2	0.99
4.0	2.0	1.5	0.54	3.0	1.62
6.0	2.0	1.5	0.66	3.0	1.98
8.0	2.0	1.6	0.70	3.2	2.24
10.0	2.0	1.6	0.78	3.2	2.50
12.0	2.0	1.7	0.76	3.4	2.58
14.0	2.0	1.7	0.74	3.4	2.52
16.0	2.0	1.7	0.72	3.4	2.45
18.0	2.0	1.6	0.75	3.2	2.40
20.0	2.0	1.6	0.66	3.2	2.11
22.0	2.0	1.6	0.72	3.2	2.30
24.0	2.0	1.6	0.69	3.2	2.21
26.0	2.0	1.6	0.75	3.2	2.40
28.0	2.0	1.5	0.71	3.0	2.13
30.0	2.0	1.5	0.64	3.0	1.92
32.0	2.0	1.4	0.44	2.8	1.23
34.0	2.0	1.3	0.50	2.6	1.30
36.0	2.0	1.1	0.36	2.2	0.79
38.0	2.0	0.8	0.35	1.6	0.56
40.0	2.0	0.4	0.29	0.8	0.23
42.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **37**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle EBS **Date:** 12/1/04
Weather: Overcast, flurries, ~30°s F **Gage Reader:** RRE
Location: STRM005

Start time: 1003 RP start (ft): NM

Finish time: 1022 RP end (ft): 3.49

Inst. read (ft): 3.513

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	WIdth (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
44.0	1.0	0.0	0.00	0.0	0.00
42.0	2.0	1.0	0.04	2.0	0.08
40.0	2.0	1.3	0.08	2.6	0.21
38.0	2.0	1.6	0.09	3.2	0.29
36.0	2.0	2.0	0.16	4.0	0.64
34.0	2.0	2.2	0.23	4.4	1.01
32.0	2.0	2.3	0.33	4.6	1.52
30.0	2.0	2.4	0.42	4.8	2.02
28.0	2.0	2.4	0.38	4.8	1.82
26.0	2.0	2.4	0.34	4.8	1.63
24.0	2.0	2.4	0.38	4.8	1.82
22.0	2.0	2.5	0.39	5.0	1.95
20.0	2.0	2.5	0.39	5.0	1.95
18.0	2.0	2.4	0.43	4.8	2.06
16.0	2.0	2.4	0.44	4.8	2.11
14.0	2.0	2.4	0.46	4.8	2.21
12.0	2.0	2.5	0.47	5.0	2.35
10.0	2.0	2.4	0.38	4.8	1.82
8.0	2.0	2.4	0.39	4.8	1.87
6.0	2.0	2.3	0.37	4.6	1.70
4.0	2.0	2.3	0.17	4.6	0.78
2.0	2.0	2.3	0.20	4.6	0.92
0.0	1.0	2.3	0.10	2.3	0.23

Total Flow: **31**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, calm, ~30°s F
Location: STRM005

Date: 4/4/05
Gage reader: RRE

Start time: 1000 RP start (ft): 4.24 [10.38]

Finish time: 1045 RP end (ft): 4.18 [10.44]

Inst. read (ft): 4.179

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	4.1	1.39	1.17	4.1	5.2
2.0	2.0	3.8	1.77	1.11	7.6	10.9
4.0	2.0	3.2	2.01	1.04	6.4	9.8
6.0	2.0	2.6	1.97	1.35	5.2	8.6
8.0	2.0	2.9	2.06	1.47	5.8	10.2
10.0	2.0	2.8	2.18	1.65	5.6	10.7
12.0	2.0	3.0	2.16	1.75	6.0	11.7
14.0	2.0	2.9	2.20	1.67	5.8	11.2
16.0	2.0	2.8	2.22	1.67	5.6	10.9
18.0	2.0	2.8	2.24	1.37	5.6	10.1
20.0	2.0	2.6	1.65		5.2	8.6
22.0	2.0	2.6	1.71		5.2	8.9
24.0	2.0	2.6	1.98		5.2	10.3
26.0	2.0	2.6	2.02		5.2	10.5
28.0	2.0	2.2	2.03		4.4	8.9
30.0	2.0	2.3	1.93		4.6	8.9
32.0	2.0	2.2	1.73		4.4	7.6
34.0	2.0	2.3	1.47		4.6	6.8
36.0	2.0	2.3	1.08		4.6	5.0
38.0	2.0	1.8	1.10		3.6	4.0
40.0	2.0	1.6	0.97		3.2	3.1
42.0	1.0	0.0	0.00		0.0	0.0

Total Flow: 182

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Rain, ~30°s F
Location: STRM005

Date: 4/6/05
Gage reader: RRE

Start time: 0820 RP start (ft): 5.49 [9.13]

Finish time: 0920 RP end (ft): 5.46 [9.16]

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	5.4	1.71	1.98	5.4	10.0
2.0	2.0	5.1	1.76	2.33	10.2	20.9
4.0	2.0	4.3	1.36	2.66	8.6	17.3
6.0	2.0	4.0	1.90	2.66	8.0	18.2
8.0	2.0	3.6	2.17	2.78	7.2	17.8
10.0	2.0	3.3	2.31	2.83	6.6	17.0
12.0	2.0	3.4	2.26	2.71	6.8	16.9
14.0	2.0	3.3	2.29	2.70	6.6	16.5
16.0	2.0	3.3	2.41	2.77	6.6	17.1
18.0	2.0	3.4	2.23	2.75	6.8	16.9
20.0	2.0	3.0	2.25	2.64	6.0	14.7
22.0	2.0	3.3	2.26	2.62	6.6	16.1
24.0	2.0	3.4	2.29	2.56	6.8	16.5
26.0	2.0	3.4	2.13	2.57	6.8	16.0
28.0	2.0	3.5	2.08	2.62	7.0	16.5
30.0	2.0	3.5	2.00	2.47	7.0	15.6
32.0	2.0	3.6	1.79	2.37	7.2	15.0
34.0	2.0	3.6	1.74	2.06	7.2	13.7
36.0	2.0	3.5	1.27	1.58	7.0	10.0
38.0	2.0	3.0	1.10	1.45	6.0	7.7
40.0	2.0	2.7	1.20		5.4	6.5
42.0	2.0	1.0	0.91		2.0	1.8
44.0	1.0	0.0	0.00		0.0	0.0

Total Flow: **318**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/7/05
Weather: Clear, breezy,~40°s F **Gage reader:** RRE
Location: STRM005

Start time: 0835 RP start (ft): 6.50 [8.12]

Finish time: 0925 RP end (ft): 6.28 [8.34]

Inst. read (ft): NM

Remarks: Peak estimated at 0.8' higher.

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	6.0	1.85	1.92	6.0	11.3
2.0	2.0	5.7	2.24	2.34	11.4	26.1
4.0	2.0	5.2	2.06	2.69	10.4	24.7
6.0	2.0	5.2	2.09	2.93	10.4	26.1
8.0	2.0	4.7	2.33	3.03	9.4	25.2
10.0	2.0	4.4	2.21	3.08	8.8	23.3
12.0	2.0	4.0	2.46	3.01	8.0	21.9
14.0	2.0	3.9	2.50	2.92	7.8	21.1
16.0	2.0	4.0	2.48	3.02	8.0	22.0
18.0	2.0	4.3	2.51	3.03	8.6	23.8
20.0	2.0	4.4	2.20	2.90	8.8	22.4
22.0	2.0	4.5	2.10	3.01	9.0	23.0
24.0	2.0	4.5	2.66	2.86	9.0	24.8
26.0	2.0	4.5	2.31	2.78	9.0	22.9
28.0	2.0	4.4	2.22	2.70	8.8	21.6
30.0	2.0	4.3	1.78	2.52	8.6	18.5
32.0	2.0	4.3	2.12	2.35	8.6	19.2
34.0	2.0	4.3	1.68	2.25	8.6	16.9
36.0	2.0	4.4	1.60	1.94	8.8	15.6
38.0	2.0	4.0	1.10	1.59	8.0	10.8
40.0	2.0	3.6	1.00	1.26	7.2	8.1
42.0	2.0	2.1	0.94		4.2	3.9
44.0	2.0	1.1	0.58		2.2	1.3
46.0	2.0	0.5	0.34		1.0	0.3
48.0	1.0	0.0	0.00		0.0	0.0

Total Flow: **435**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/21/05
Weather: Clear, ~30°s F **Gage reader:** RRE
Location: STRM005

Start time: 0820 RP start (ft): 2.75

Finish time: 0845 RP end (ft): 2.74

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
42.0	2.0	0.0	0.00	0.0	0.0
38.0	3.0	0.3	0.66	0.9	0.6
36.0	2.0	0.8	0.80	1.6	1.3
34.0	2.0	1.0	1.01	2.0	2.0
32.0	2.0	1.3	1.16	2.6	3.0
30.0	2.0	1.4	1.23	2.8	3.4
28.0	2.0	1.5	1.29	3.0	3.9
26.0	2.0	1.7	1.29	3.4	4.4
24.0	2.0	1.6	1.41	3.2	4.5
22.0	2.0	1.6	1.38	3.2	4.4
20.0	2.0	1.6	1.38	3.2	4.4
18.0	2.0	1.6	1.38	3.2	4.4
16.0	2.0	1.6	1.47	3.2	4.7
14.0	2.0	1.7	1.54	3.4	5.2
12.0	2.0	1.6	1.58	3.2	5.1
10.0	2.0	1.6	1.62	3.2	5.2
8.0	2.0	1.6	1.47	3.2	4.7
6.0	2.0	1.5	1.38	3.0	4.1
4.0	2.0	1.3	1.26	2.6	3.3
2.0	2.0	1.3	0.86	2.6	2.2
0.0	1.0	1.3	0.40	1.3	0.5

Total Flow: **71**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/31/05
Weather: Light breeze, ~50°s F **Gage reader:** RRE
Location: STRM005

Start time: 1350 RP start (ft): 2.11

Finish time: 1415 RP end (ft): 2.11

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.6	0.16	0.6	0.10
2.0	2.0	0.7	0.53	1.4	0.74
4.0	2.0	1.0	0.62	2.0	1.24
6.0	2.0	1.2	0.77	2.4	1.85
8.0	2.0	1.3	0.88	2.6	2.29
10.0	2.0	1.4	1.16	2.8	3.25
12.0	2.0	1.4	1.06	2.8	2.97
14.0	2.0	1.3	1.17	2.6	3.04
16.0	2.0	1.3	1.12	2.6	2.91
18.0	2.0	1.3	0.98	2.6	2.55
20.0	2.0	1.3	0.94	2.6	2.44
22.0	2.0	1.3	1.02	2.6	2.65
24.0	2.0	1.2	0.87	2.4	2.09
26.0	2.0	1.1	1.02	2.2	2.24
28.0	2.0	1.0	1.01	2.0	2.02
30.0	2.0	0.9	0.80	1.8	1.44
32.0	2.0	0.7	0.87	1.4	1.22
34.0	2.0	0.6	0.80	1.2	0.96
36.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **36**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 8/23/04
Weather: Light breeze, ~50°s F **Gage reader:** RRE
Location: YDRM002

Start time: NM RP start (ft): 2.78

Finish time: 1119 RP end (ft): 2.79

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.8	0.7	1.10	0.5	0.58
2.5	0.5	1.0	1.47	0.5	0.74
3.0	0.5	1.2	1.58	0.6	0.95
3.5	0.5	1.4	1.58	0.7	1.11
4.0	0.5	1.6	1.65	0.8	1.32
4.5	0.5	1.8	1.65	0.9	1.49
5.0	0.5	1.9	1.63	1.0	1.55
5.5	0.5	1.9	1.65	1.0	1.57
6.0	0.5	1.8	1.69	0.9	1.52
6.5	0.5	1.7	1.69	0.9	1.44
7.0	0.5	1.8	1.74	0.9	1.57
7.5	0.5	1.7	1.56	0.9	1.33
8.0	0.5	1.5	1.40	0.8	1.05
8.5	0.5	1.3	1.40	0.7	0.91
9.0	0.5	1.0	1.05	0.5	0.53
9.5	0.8	0.5	0.20	0.4	0.08
10.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **18**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 8/25/04
Weather: Partly cloudy, ~60°s F **Gage Reader:** RRE
Location: YDRM002

Start time: 1120 RP start (ft): 2.90

Finish time: 1145 RP end (ft): 2.89

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.8	0.7	0.39	0.5	0.20
2.5	0.5	0.9	1.27	0.5	0.57
3.0	0.5	1.1	1.31	0.6	0.72
3.5	0.5	1.5	1.17	0.8	0.88
4.0	0.5	1.6	1.39	0.8	1.11
4.5	0.5	1.7	1.33	0.9	1.13
5.0	0.5	1.7	1.26	0.9	1.07
5.5	0.5	1.7	1.36	0.9	1.16
6.0	0.5	1.7	1.41	0.9	1.20
6.5	0.5	1.7	1.36	0.9	1.16
7.0	0.5	1.6	1.42	0.8	1.14
7.5	0.5	1.6	1.25	0.8	1.00
8.0	0.5	1.5	0.94	0.8	0.71
8.5	0.5	1.3	1.04	0.7	0.68
9.0	0.5	0.9	0.37	0.5	0.17
9.5	0.8	0.4	0.04	0.3	0.01
10.5	0.5	0.0	0.00	0.0	0.00

Total Flow: **13**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 9/2/04
Weather: Overcast, light wind, ~60°s F **Gage Reader:** RRE
Location: YDRM002

Start time: 1600 RP start (ft): 2.98

Finish time: NM RP end (ft): NM

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	0.8	0.6	0.70	0.5	0.32
1.5	0.5	1.0	1.02	0.5	0.51
2.0	0.5	1.3	0.82	0.7	0.53
2.5	0.5	1.3	1.03	0.7	0.67
3.0	0.5	1.2	1.33	0.6	0.80
3.5	0.5	1.2	1.34	0.6	0.80
4.0	0.5	1.3	1.28	0.7	0.83
4.5	0.5	1.5	1.22	0.8	0.92
5.0	0.5	1.5	1.14	0.8	0.86
5.5	0.5	1.3	1.22	0.7	0.79
6.0	0.5	1.4	1.17	0.7	0.82
6.5	0.5	1.4	1.31	0.7	0.92
7.0	0.5	1.3	1.22	0.7	0.79
7.5	0.5	1.2	1.05	0.6	0.63
8.0	0.5	0.8	0.79	0.4	0.32
8.5	0.5	0.6	0.29	0.3	0.09
9.0	0.8	0.3	0.16	0.2	0.04
10.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **11**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 9/15/04
Weather: Cloudy, light rain, ~60°s F **Gage Reader:** RRE
Location: YDRM002

Start time: 1355 RP start (ft): 2.81

Finish time: 1420 RP end (ft): 2.82

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.7	0.92	0.7	0.64
2.0	0.8	1.0	1.29	0.8	0.97
2.5	0.5	1.5	1.04	0.8	0.78
3.0	0.5	1.4	1.60	0.7	1.12
3.5	0.5	1.5	1.72	0.8	1.29
4.0	0.5	1.5	1.54	0.8	1.16
4.5	0.5	1.5	1.37	0.8	1.03
5.0	0.5	1.5	1.57	0.8	1.18
5.5	0.5	1.7	1.54	0.9	1.31
6.0	0.5	1.5	1.68	0.8	1.26
6.5	0.5	1.6	1.56	0.8	1.25
7.0	0.5	1.4	1.65	0.7	1.16
7.5	0.5	1.3	1.50	0.7	0.98
8.0	0.5	1.2	1.29	0.6	0.77
8.5	0.5	1.0	0.84	0.5	0.42
9.0	0.8	1.0	0.50	0.8	0.38
10.0	1.0	0.6	0.10	0.6	0.06
11.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **16**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, sunny, ~50°s F
Location: YDRM002

Date: 9/29/04
Gage Reader: RRE

Start time: 1220 RP start (ft): 3.11

Finish time: 1235 RP end (ft): 3.11

Inst. read (ft): 3.126

Remarks:

Meter units: m/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (m/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.00	0.0	0.00
2.0	0.8	0.5	0.15	0.49	0.4	0.18
2.5	0.5	1.2	0.21	0.69	0.6	0.41
3.0	0.5	1.2	0.18	0.59	0.6	0.35
3.5	0.5	1.3	0.31	1.02	0.7	0.66
4.0	0.5	1.3	0.32	1.05	0.7	0.68
4.5	0.5	1.3	0.32	1.05	0.7	0.68
5.0	0.5	1.3	0.33	1.08	0.7	0.70
5.5	0.5	1.3	0.28	0.92	0.7	0.60
6.0	0.5	1.1	0.30	0.98	0.6	0.54
6.5	0.5	1.2	0.30	0.98	0.6	0.59
7.0	0.5	1.2	0.29	0.95	0.6	0.57
7.5	0.5	1.1	0.30	0.98	0.6	0.54
8.0	0.5	0.9	0.25	0.82	0.5	0.37
8.5	0.5	0.4	0.14	0.46	0.2	0.09
9.0	0.5	0.6	0.11	0.36	0.3	0.11
9.5	0.5	0.5	0.10	0.33	0.3	0.08
10.0	0.8	0.5	0.05	0.16	0.4	0.06
11.0	0.5	0.0	0.00	0.00	0.0	0.00

Total Flow: **7.2**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 10/4/04
Weather: Overcast, windy, ~30°s F **Gage Reader:** RRE/JGM
Location: YDRM002

Start time: 0950 RP start (ft): 2.97

Finish time: 1005 RP end (ft): 2.97

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.6	0.74	0.6	0.44
2.0	0.8	0.9	1.38	0.7	0.93
2.5	0.5	1.4	1.10	0.7	0.77
3.0	0.5	1.4	1.49	0.7	1.04
3.5	0.5	1.4	1.47	0.7	1.03
4.0	0.5	1.4	1.54	0.7	1.08
4.5	0.5	1.4	1.52	0.7	1.06
5.0	0.5	1.4	1.25	0.7	0.88
5.5	0.5	1.3	1.54	0.7	1.00
6.0	0.5	1.3	1.53	0.7	0.99
6.5	0.5	1.3	1.43	0.7	0.93
7.0	0.5	1.2	1.34	0.6	0.80
7.5	0.5	1.1	1.17	0.6	0.64
8.0	0.8	1.0	0.98	0.8	0.74
9.0	1.0	0.7	0.42	0.7	0.29
10.0	1.0	0.5	0.03	0.5	0.02
11.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **13**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 10/25/04
Weather: Cloudy, ~40°s F **Gage Reader:** RRE
Location: YDRM002

Start time: 1340 RP start (ft): 2.16

Finish time: 1405 RP end (ft): 2.16

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	1.0	0.7	0.91	0.7	0.64
3.0	0.8	1.4	1.59	1.1	1.67
3.5	0.5	1.9	1.92	1.0	1.82
4.0	0.5	2.1	1.90	1.1	2.00
4.5	0.5	2.1	2.39	1.1	2.51
5.0	0.5	2.2	2.38	1.1	2.62
5.5	0.5	2.2	2.25	1.1	2.48
6.0	0.5	2.2	2.32	1.1	2.55
6.5	0.5	2.2	2.20	1.1	2.42
7.0	0.5	2.1	2.24	1.1	2.35
7.5	0.5	2.1	2.46	1.1	2.58
8.0	0.5	2.1	2.30	1.1	2.42
8.5	0.5	2.0	1.97	1.0	1.97
9.0	0.5	1.9	2.00	1.0	1.90
9.5	0.5	1.8	1.70	0.9	1.53
10.0	0.5	1.6	1.65	0.8	1.32
10.5	0.5	1.5	0.94	0.8	0.71
11.0	0.8	1.4	0.39	1.1	0.41
12.0	1.0	0.6	0.07	0.6	0.04
13.0	1.0	0.5	0.00	0.5	0.00
14.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **34**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 12/1/04
Weather: Calm, flurries, overcast, ~30°s F **Gage reader:** RRE/KMP
Location: YDRM002

Start time: 1552 RP start (ft): 2.67

Finish time: 1606 RP end (ft): NA

Inst. read (ft): 2.696

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.8	0.8	0.87	0.6	0.52
2.5	0.5	1.1	0.95	0.6	0.52
3.0	0.5	1.4	1.47	0.7	1.03
3.5	0.5	1.7	1.35	0.9	1.15
4.0	0.5	1.6	1.44	0.8	1.15
4.5	0.5	1.6	1.71	0.8	1.37
5.0	0.5	1.6	1.70	0.8	1.36
5.5	0.5	1.6	1.71	0.8	1.37
6.0	0.5	1.8	1.72	0.9	1.55
6.5	0.5	1.8	1.69	0.9	1.52
7.0	0.5	1.7	1.73	0.9	1.47
7.5	0.5	1.7	1.91	0.9	1.62
8.0	0.5	1.6	1.63	0.8	1.30
8.5	0.5	1.3	1.42	0.7	0.92
9.0	0.5	1.1	1.29	0.6	0.71
9.5	0.5	1.0	0.70	0.5	0.35
10.0	0.8	0.8	0.09	0.6	0.05
11.0	1.0	0.5	0.00	0.5	0.00
12.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **18**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 3/17/05
Weather: Sunny, scattered clouds, ~20°s F **Gage reader:** RRE
Location: YDRM002

Start time: 0930 RP start (ft): 2.76

Finish time: 0955 RP end (ft): 2.75

Inst. read (ft): 2.656

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.4	1.16	0.4	0.46
2.0	0.8	0.6	1.51	0.5	0.68
2.5	0.5	1.0	1.56	0.5	0.78
3.0	0.5	1.3	1.79	0.7	1.16
3.5	0.5	1.4	1.73	0.7	1.21
4.0	0.5	1.4	1.89	0.7	1.32
4.5	0.5	1.4	1.86	0.7	1.30
5.0	0.5	1.4	1.99	0.7	1.39
5.5	0.5	1.4	1.71	0.7	1.20
6.0	0.5	1.4	1.80	0.7	1.26
6.5	0.5	1.3	1.97	0.7	1.28
7.0	0.5	1.3	1.72	0.7	1.12
7.5	0.5	1.2	1.52	0.6	0.91
8.0	0.5	1.0	1.57	0.5	0.79
8.5	0.5	1.0	1.37	0.5	0.69
9.0	0.8	1.0	0.83	0.8	0.62
10.0	1.0	0.9	0.45	0.9	0.41
11.0	1.0	0.4	0.12	0.4	0.05
12.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **17**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 3/30/05
Weather: Windy, partly cloudy, ~50°s F **Gage reader:** RRE
Location: YDRM002

Start time: NM RP start (ft): NA

Finish time: 1400 RP end (ft): 1.43

Inst. read (ft): 1.424

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
3.0	0.5	0.0	0.00		0.0	0.00
4.0	1.0	0.3	0.07		0.3	0.02
5.0	1.0	0.7	0.48		0.7	0.34
6.0	0.8	1.5	1.36		1.1	1.53
6.5	0.5	1.9	2.14		0.9	1.98
7.0	0.5	2.1	1.70	3.08	1.1	2.51
7.5	0.5	2.7	2.27	2.96	1.4	3.53
8.0	0.5	2.5	2.40	3.11	1.3	3.44
8.5	0.5	2.8	2.63	2.89	1.4	3.86
9.0	0.5	3.0	2.64	2.87	1.5	4.13
9.5	0.5	3.0	3.14	2.80	1.5	4.46
10.0	0.5	3.1	3.42	2.95	1.6	4.94
10.5	0.5	3.0	3.22	2.96	1.5	4.64
11.0	0.5	3.2	2.99	3.05	1.6	4.83
11.5	0.5	3.1	3.11	2.71	1.6	4.51
12.0	0.5	3.1	2.97	2.46	1.6	4.21
12.5	0.5	3.0	2.67	2.53	1.5	3.90
13.0	0.8	2.7	2.34	2.30	2.0	4.70
14.0	1.0	2.4	1.82	2.32	2.4	4.97
15.0	1.0	1.4	2.14		1.4	3.00
16.0	0.8	1.0	0.03		0.8	0.02
16.5	0.5	0.5	0.53		0.3	0.13
17.0	0.3	0.0	0.00		0.0	0.00

Total Flow: **66**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/2/05
Weather: Breezy, clear, ~40°s F **Gage reader:** PJS
Location: YDRM002

Start time: 1325 RP start (ft): 0.29

Finish time: 1405 RP end (ft): 0.31

Inst. read (ft): 0.291

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00		0.0	0.00
2.0	1.0	0.7	0.86		0.7	0.60
3.0	1.0	1.3	1.22		1.3	1.59
4.0	1.0	1.3	2.39		1.3	3.11
5.0	1.0	2.9	2.44	2.24	2.9	6.79
6.0	1.0	3.5	2.58	2.08	3.5	8.16
7.0	1.0	3.8	2.86	2.55	3.8	10.28
8.0	1.0	4.0	3.39	3.47	4.0	13.72
9.0	1.0	3.8	2.71	3.42	3.8	11.65
10.0	1.0	4.0	3.48	3.15	4.0	13.26
11.0	1.0	3.7	3.00	3.29	3.7	11.64
12.0	1.0	3.5	3.03	3.32	3.5	11.11
13.0	1.0	3.2	2.68	1.57	3.2	6.80
14.0	1.0	2.6	2.52	1.09	2.6	4.69
15.0	1.0	2.4	0.39		2.4	0.94
16.0	1.0	2.2	-0.11		2.2	-0.24
17.0	1.0	2.3	-0.12		2.3	-0.28
18.0	0.5	2.2	-0.08		1.1	-0.09

Total Flow: **104**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/4/05
Weather: Clear, mild, ~30°s F **Gage reader:** PJS
Location: YDRM002

Start time: 1235 RP start (ft): 0.58

Finish time: 1310 RP end (ft): 0.58

Inst. read (ft): NM

Remarks: Less than 1% flowing through snow along right bank before passing gage.

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00		0.0	0.00
2.0	1.0	0.2	0.42		0.2	0.08
3.0	1.0	1.2	1.68		1.2	2.02
4.0	1.0	1.1	2.61		1.1	2.87
5.0	1.0	2.7	2.57	0.86	2.7	4.63
6.0	1.0	3.4	2.63	2.32	3.4	8.42
7.0	1.0	3.6	2.78	2.62	3.6	9.72
8.0	1.0	3.7	3.15	3.29	3.7	11.91
9.0	1.0	3.6	3.57	3.21	3.6	12.20
10.0	1.0	3.6	3.29	2.88	3.6	11.11
11.0	1.0	3.5	2.09	3.23	3.5	9.31
12.0	1.0	3.0	3.20	3.04	3.0	9.36
13.0	1.0	3.1	3.05	1.30	3.1	6.74
14.0	1.0	2.6	1.82	0.69	2.6	3.26
15.0	1.0	2.3	0.16		2.3	0.37
16.0	1.0	2.0	-0.18		2.0	-0.36
17.0	1.0	1.9	-0.25		1.9	-0.48
18.0	0.5	2.1	-0.18		1.1	-0.19

Total Flow: **91**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, calm, ~30°s F
Location: YDRM002

Date: 4/7/05
Gage reader: RRE/PJS

Start time: 0900 RP start (ft): -0.75

Finish time: 1200 RP end (ft): -0.71

Inst. read (ft): NM

Remarks: Three bypass measurements (A-C).

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
3.0	0.5	1.5	1.47		0.8	1.10
4.0	1.0	2.0	2.00		2.0	4.00
5.0	1.0	2.2	2.15		2.2	4.73
6.0	1.0	2.6	2.39	2.00	2.6	5.71
7.0	1.0	3.4	2.50	2.92	3.4	9.21
8.0	1.0	3.7	3.72	3.57	3.7	13.49
9.0	1.0	3.7	3.98	4.16	3.7	15.06
10.0	1.0	4.2	4.16	3.98	4.2	17.09
11.0	1.0	4.5	4.16	4.07	4.5	18.52
12.0	1.0	4.7	4.07	4.26	4.7	19.58
13.0	1.0	4.5	3.98	3.89	4.5	17.71
14.0	1.0	4.2	3.72	3.35	4.2	14.85
15.0	1.0	4.1	3.06	3.21	4.1	12.85
16.0	1.0	4.0	2.24	3.13	4.0	10.74
17.0	1.0	2.9	2.50	3.13	2.9	8.16
18.0	1.0	1.9	2.20		1.9	4.18
19.0	1.0	1.6	1.35		1.6	2.16
20.0	0.5	1.7	0.40		0.9	0.34

Main Flow: 179
A Flow: 13
B Flow: 16
C Flow: 33
Total Flow: **242**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, calm, ~30°s F
Location: YDRM002

Date: 4/7/05
Gage reader: RRE/PJS

Overflow Measurement A

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.5	0.0	0	0.00	0.0	0.00
3.0	4.0	0.3	50	0.22	1.2	0.17
8.0	5.0	0.3	50	0.69	1.5	0.66
13.0	5.0	0.3	45	0.66	1.5	0.70
18.0	5.0	0.5	45	0.44	2.5	0.78
23.0	5.0	0.5	45	0.40	2.5	0.71
28.0	5.0	0.8	45	0.38	4.0	1.06
33.0	5.0	1.0	45	0.29	5.0	1.03
38.0	5.0	1.1	30	0.23	5.5	1.08
43.0	5.0	1.3	20	0.27	6.5	1.64
48.0	5.0	1.4	20	0.33	7.0	2.18
53.0	5.0	1.4	20	0.28	7.0	1.84
58.0	3.5	1.3	0	0.35	4.6	1.60
60.0	1.0	0.0	0	0.00	0.0	0.00

Total Flow: 13

Overflow Measurement B

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
17.0	2.5	0.0	0	0.00	0.0	0.00
22.0	5.0	0.5	45	0.65	2.5	1.15
27.0	5.0	0.5	45	1.03	2.5	1.82
32.0	5.0	0.6	40	0.97	3.0	2.22
37.0	5.0	1.0	40	0.82	5.0	3.13
42.0	5.0	1.0	30	0.73	5.0	3.17
47.0	5.0	1.0	0	0.47	5.0	2.33
52.0	5.0	1.0	0	0.29	5.0	1.46
57.0	5.0	0.8	0	0.15	4.0	0.58
62.0	2.5	0.0	0	0.00	0.0	0.00

Total Flow: 16

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/7/05
Weather: Clear, calm, ~30°s F **Gage reader:** RRE/PJS
Location: YDRM002

Overflow Measurement **C**

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	2.5	0.0	0	0.00	0.0	0.00
5.0	5.0	1.3	30	0.18	6.5	0.99
10.0	5.0	1.4	45	0.16	7.0	0.79
15.0	5.0	1.2	45	0.65	6.0	2.75
20.0	5.0	1.0	15	0.49	5.0	2.39
25.0	5.0	0.9	15	0.34	4.5	1.47
30.0	5.0	0.8	0	0.39	4.0	1.57
35.0	5.0	0.8	0	0.46	4.0	1.82
40.0	5.0	1.0	20	0.44	5.0	2.06
45.0	5.0	1.0	30	0.47	5.0	2.01
50.0	5.0	0.9	20	0.43	4.5	1.82
55.0	5.0	0.9	20	0.38	4.5	1.59
60.0	5.0	0.8	75	0.38	4.0	0.40
65.0	5.0	0.8	75	0.33	4.0	0.34
70.0	5.0	0.6	0	0.18	3.0	0.53
75.0	5.0	0.7	75	0.19	3.5	0.17
80.0	7.5	0.6	0	0.21	4.5	0.95
90.0	7.5	0.4	0	0.13	3.0	0.39
95.0	5.0	0.6	0	0.03	3.0	0.08
100.0	5.0	0.6	0	0.47	3.0	1.40
105.0	7.5	0.6	0	0.67	4.5	3.03
115.0	10.0	0.4	0	0.75	4.0	2.99
125.0	7.5	0.0	0	0.00	0.0	0.00
130.0	7.5	0.3	0	0.16	2.3	0.36
140.0	10.0	0.4	0	0.47	4.0	1.86
150.0	10.0	0.3	0	0.35	3.0	1.04
160.0	10.0	0.2	0	0.13	2.0	0.26
170.0	10.0	0.2	0	0.17	2.0	0.34
180.0	5.0	0.0	0	0.00	0.0	0.00

Total Flow: **33**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Breezy, scattered clouds, ~40°s F
Location: YDRM002

Date: 4/12/05
Gage reader: RRE

Start time: 0940 RP start (ft): -0.58

Finish time: 1200 RP end (ft): -0.58

Inst. read (ft): NM

Remarks: Four bypass measurements (A-D).

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
3.0	1.0	1.5	1.18		1.5	1.77
5.0	1.5	2.0	1.96		3.0	5.88
6.0	1.0	2.6	2.20	2.15	2.6	5.66
7.0	1.0	3.3	3.28	3.50	3.3	11.19
8.0	1.0	3.7	3.65	3.50	3.7	13.23
9.0	1.0	4.0	3.80	3.65	4.0	14.90
10.0	1.0	4.3	4.07	3.65	4.3	16.60
11.0	1.0	4.5	4.07	3.89	4.5	17.91
12.0	1.0	4.7	3.98	3.98	4.7	18.71
13.0	1.0	4.3	3.89	3.80	4.3	16.53
14.0	1.0	4.0	2.57	3.35	4.0	11.84
15.0	1.0	3.8	2.16	2.92	3.8	9.65
16.0	1.0	3.4	1.96	2.92	3.4	8.30
17.0	1.0	2.6	2.34	2.92	2.6	6.08
18.0	1.0	1.9	2.86		1.9	5.43
19.0	1.0	1.5	1.20		1.5	1.80
20.0	0.5	0.0	0.00		0.0	0.00

Main Flow: 165
A Flow: 7.5
B Flow: 5.8
C Flow: 16
D Flow: 1.0
Total Flow: **196**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/12/05
Weather: Breezy, scattered clouds, ~40°s F **Gage reader:** RRE
Location: YDRM002

Overflow Measurement A

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	5.0	0.0	0	0.00	0.0	0.00
10.0	10.0	0.9	0	0.16	9.0	1.40
20.0	10.0	1.2	50	0.23	12.0	1.74
30.0	10.0	1.1	50	0.16	11.0	1.12
40.0	10.0	1.0	60	0.29	10.0	1.43
50.0	10.0	0.5	50	0.31	5.0	1.01
60.0	10.0	0.4	45	0.25	4.0	0.71
70.0	7.5	0.3	75	0.13	2.3	0.08
75.0	2.5	0.0	0	0.00	0.0	0.00

Total Flow: 7.5

Overflow Measurement B

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	5.0	0.0	0	0.00	0.0	0.00
10.0	10.0	0.4	80	0.76	4.0	0.53
20.0	10.0	0.8	50	0.66	8.0	3.40
30.0	10.0	1.0	0	0.18	10.0	1.84
40.0	5.0	0.0	0	0.00	0.0	0.00

Total Flow: 5.8

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/12/05
Weather: Breezy, scattered clouds, ~40°s F **Gage reader:** RRE
Location: YDRM002

Overflow Measurement C

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	2.5	0.0	0	0.00	0.0	0.00
5.0	5.0	1.2	10	0.17	6.0	1.02
10.0	5.0	1.2	10	0.29	6.0	1.73
15.0	5.0	1.3	15	0.52	6.5	3.23
20.0	7.5	0.9	0	0.38	6.8	2.59
30.0	10.0	0.7	0	0.50	7.0	3.53
40.0	10.0	0.8	15	0.28	8.0	2.16
50.0	10.0	0.8	30	0.29	8.0	2.02
60.0	10.0	0.6	80	0.18	6.0	0.19
70.0	5.0	0.0	0	0.00	0.0	0.00

Total Flow: 16

Overflow Measurement D

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
90.0	2.0	0.0	0	0.00	0.0	0.00
94.0	4.0	0.4	0	0.35	1.6	0.56
98.0	4.0	0.4	0	0.29	1.6	0.46
102.0	2.0	0.0	0	0.00	0.0	0.00

Total Flow: 1.0

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Calm, clear, ~40°s F
Location: YDRM002

Date: 4/13/05
Gage reader: RRE

Start time: NM RP start (ft): -0.31

Finish time: 1510 RP end (ft):

Inst. read (ft): NM

Remarks: Three bypass measurements (A-C).

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
3.0	0.5	1.2	0.88		0.6	0.53
4.0	1.0	1.5	1.18		1.5	1.77
5.0	1.0	1.7	1.96		1.7	3.33
6.0	1.0	2.2	2.61		2.2	5.74
7.0	1.0	2.9	2.20	2.92	2.9	7.42
8.0	1.0	3.3	2.74	3.28	3.3	9.93
9.0	1.0	3.6	3.80	3.50	3.6	13.14
10.0	1.0	3.9	3.80	3.28	3.9	13.81
11.0	1.0	4.2	3.80	3.80	4.2	15.96
12.0	1.0	4.1	3.80	3.89	4.1	15.76
13.0	1.0	4.0	3.65	3.72	4.0	14.74
14.0	1.0	3.7	3.50	2.74	3.7	11.54
15.0	1.0	3.7	2.44	2.99	3.7	10.05
16.0	1.0	3.1	2.00	2.86	3.1	7.53
17.0	1.0	2.1	2.92		2.1	6.13
18.0	1.0	1.5	1.84		1.5	2.76
19.0	0.5	0.0	0.00		0.0	0.00

Main Flow: 140
A Flow: 2.9
B Flow: 4.4
C Flow: 7.6
Total Flow: **155**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/13/05
Weather: Calm, clear, ~40°s F **Gage reader:** RRE
Location: YDRM002

Overflow Measurement A

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.5	0.0	0	0.00	0.0	0.00
3.0	4.0	0.0	0	0.00	0.0	0.00
8.0	5.0	0.5	20	0.15	2.5	0.35
13.0	5.0	0.7	0	0.09	3.5	0.32
18.0	5.0	0.9	45	0.12	4.5	0.38
23.0	5.0	0.9	45	0.16	4.5	0.51
28.0	5.0	0.9	45	0.17	4.5	0.54
33.0	5.0	0.7	45	0.06	3.5	0.15
38.0	5.0	0.8	20	0.05	4.0	0.19
43.0	5.0	0.8	45	0.08	4.0	0.23
48.0	5.0	0.7	45	0.04	3.5	0.10
53.0	5.0	0.3	45	0.11	1.3	0.10
58.0	5.0	0.0	0	0.00	0.1	0.00
63.0	2.5	0.0	0	0.00	0.0	0.00

Total Flow: 2.9

Overflow Measurement B

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
8.0	2.5	0.0	0	0.00	0.0	0.00
13.0	5.0	0.3	0	0.14	1.3	0.18
18.0	5.0	0.2	20	0.18	1.0	0.17
23.0	5.0	0.4	10	0.64	2.0	1.26
28.0	5.0	0.7	30	0.28	3.5	0.85
33.0	5.0	0.7	0	0.30	3.5	1.05
38.0	5.0	0.7	0	0.24	3.5	0.84
43.0	5.0	0.4	0	0.05	2.0	0.10
48.0	2.5	0.0	0	0.00	0.0	0.00

Total Flow: 4.4

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/13/05
Weather: Calm, clear, ~40°s F **Gage reader:** RRE
Location: YDRM002

Overflow Measurement **C**

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Angle	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.5	0.0	0	0.00	0.0	0.00
3.0	3.0	0.9	0	0.05	2.7	0.14
6.0	3.0	1.1	10	0.15	3.3	0.49
9.0	3.0	1.1	10	0.13	3.3	0.42
12.0	3.0	1.1	20	0.22	3.3	0.68
15.0	3.0	1.3	10	0.57	3.9	2.19
18.0	3.0	0.9	0	0.20	2.7	0.54
21.0	3.0	0.7	0	0.12	2.1	0.25
24.0	3.0	0.5	0	0.29	1.5	0.44
27.0	3.0	0.3	0	0.58	0.9	0.52
30.0	4.0	0.4	20	0.46	1.6	0.69
35.0	5.0	0.4	20	0.19	2.0	0.36
40.0	5.0	0.6	45	0.25	3.0	0.53
45.0	5.0	0.6	60	0.15	3.0	0.23
50.0	5.0	0.3	20	0.06	1.5	0.08
55.0	5.0	0.3	0	0.02	1.5	0.03
60.0	2.5	0.0	0	0.00	0.0	0.00

Total Flow: **7.6**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/19/05
Weather: Clear, mild, ~40°s F **Gage reader:** RRE
Location: YDRM002

Start time: 0905 RP start (ft): 0.65

Finish time: 0940 RP end (ft): NA

Inst. read (ft): NM

Remarks: Two overflow measurements (A and B). A was 5' at 0.1' depth and 0.43 cfs = 0.2 cfs.

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00		0.0	0.00
2.0	1.0	1.1	0.77		1.1	0.85
3.0	1.0	1.2	2.69		1.2	3.23
4.0	1.0	2.3	2.81		2.3	6.46
5.0	1.0	3.1	2.46	2.38	3.1	7.50
6.0	1.0	3.6	2.73	2.33	3.6	9.11
7.0	1.0	3.7	3.19	3.34	3.7	12.08
8.0	1.0	3.7	3.40	3.49	3.7	12.75
9.0	1.0	3.7	3.46	3.87	3.7	13.56
10.0	1.0	3.4	3.42	3.30	3.4	11.42
11.0	1.0	3.1	2.27	3.33	3.1	8.68
12.0	1.0	3.0	3.26	2.04	3.0	7.95
13.0	1.0	2.6	2.66	1.28	2.6	5.12
14.0	1.0	2.1	0.07		2.1	0.15
15.0	1.0	1.9	-0.06		1.9	-0.11
16.0	1.0	1.8	-0.12		1.8	-0.22
17.0	0.5	1.6	-0.09		0.8	-0.07

Main Flow: 98
A Flow 0.2
B Flow 1.0
Total Flow: **100**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, mild, ~40°s F
Location: YDRM002

Date: 4/19/05
Gage reader: RRE

Overflow Measurement **B**

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	1.0	0.6	0.12	0.6	0.07
3.0	1.0	0.6	0.40	0.6	0.24
4.0	1.0	0.6	0.42	0.6	0.25
5.0	1.0	0.9	0.26	0.9	0.23
6.0	1.0	0.6	0.21	0.6	0.13
7.0	1.5	0.6	0.07	0.9	0.06
9.0	2.0	0.5	0.05	1.0	0.05
11.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **1.0**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, mild, ~40°s F
Location: YDRM002

Date: 4/21/05
Gage reader: RRE

Start time: 1000 RP start (ft): 0.85

Finish time: 1110 RP end (ft): 0.85

Inst. read (ft): NM

Remarks: One overflow measurement (A).

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
16.0	0.5	0.0	0.00		0.0	0.00
15.0	1.0	0.9	0.40		0.9	0.36
14.0	1.0	1.1	1.80		1.1	1.98
13.0	1.0	2.3	2.44		2.3	5.61
12.0	0.8	3.0	1.70	2.39	2.4	4.91
11.4	0.6	3.4	2.74	1.47	2.0	4.29
10.8	0.6	3.4	2.74	2.80	2.0	5.65
10.2	0.6	3.5	3.13	3.21	2.1	6.66
9.6	0.6	3.5	3.28	3.50	2.1	7.12
9.0	0.6	3.4	3.57	3.43	2.0	7.14
8.4	0.6	3.4	3.35	3.57	2.0	7.06
7.8	0.6	3.3	3.72	3.50	2.0	7.15
7.2	0.6	3.3	3.21	3.43	2.0	6.57
6.6	0.6	3.3	3.28	3.28	2.0	6.49
6.0	0.6	2.9	3.21	3.06	1.7	5.45
5.4	0.6	2.9	3.24	2.61	1.7	5.09
4.8	0.6	2.8	2.55	1.84	1.7	3.69
4.2	0.6	2.5	1.11	2.39	1.5	2.63
3.6	0.6	2.3	1.11		1.4	1.53
3.0	0.8	2.2	0.40		1.8	0.70
2.0	1.0	1.7	0.18		1.7	0.31
1.0	1.0	1.3	-0.29		1.3	-0.38
0.0	0.5	1.3	-0.24		0.7	-0.16

Main Flow: 90
A Flow 1.0
Total Flow: **91**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Clear, mild, ~40°s F
Location: YDRM002

Date: 4/21/05
Gage reader: RRE

Overflow Measurement **A**

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	1.0	0.0	0.00	0.0	0.00
2.0	2.0	0.5	0.27	1.0	0.27
4.0	2.0	0.7	0.36	1.4	0.50
6.0	2.0	0.3	0.32	0.6	0.19
8.0	1.0	0.0	0.00	0.0	0.00

Total Flow: **1.0**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/5/05
Weather: Partly cloudy, ~50°s F **Gage reader:** RRE
Location: YDRM002

Start time: 1345 RP start (ft): 2.38

Finish time: 1405 RP end (ft): 2.38

Inst. read (ft): NM

Remarks: No overflow.

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	0.5	0.0	0.00	0.0	0.0
3.0	1.0	1.0	1.38	1.0	1.4
4.0	0.8	1.1	2.11	0.8	1.7
4.5	0.5	1.7	2.19	0.9	1.9
5.0	0.5	1.9	2.32	1.0	2.2
5.5	0.5	2.0	2.47	1.0	2.5
6.0	0.5	2.0	2.51	1.0	2.5
6.5	0.5	2.0	2.50	1.0	2.5
7.0	0.5	1.9	2.65	1.0	2.5
7.5	0.5	2.0	2.66	1.0	2.7
8.0	0.5	1.9	2.62	1.0	2.5
8.5	0.5	1.9	2.48	1.0	2.4
9.0	0.5	1.8	2.36	0.9	2.1
9.5	0.5	1.7	2.35	0.9	2.0
10.0	0.5	1.4	1.92	0.7	1.3
10.5	0.5	1.4	1.50	0.7	1.1
11.0	0.8	1.3	1.09	1.0	1.1
12.0	1.0	0.9	0.06	0.9	0.1
13.0	1.0	0.5	0.03	0.5	0.0
14.0	0.5	0.0	0.00	0.0	0.0

Total Flow: **32**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/31/05
Weather: Breezy, ~50°s F **Gage reader:** RRE
Location: YDRM002

Start time: 945 RP start (ft): 2.49

Finish time: 1115 RP end (ft): 2.50

Inst. read (ft): NM

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.0
2.0	0.8	0.8	1.61	0.6	1.0
2.5	0.5	1.2	1.34	0.6	0.8
3.0	0.5	1.3	1.68	0.7	1.1
3.5	0.5	1.5	1.96	0.8	1.5
4.0	0.5	1.8	1.97	0.9	1.8
4.5	0.5	1.9	2.21	1.0	2.1
5.0	0.5	1.9	2.29	1.0	2.2
5.5	0.5	1.9	2.28	1.0	2.2
6.0	0.5	1.8	2.33	0.9	2.1
6.5	0.5	1.8	2.35	0.9	2.1
7.0	0.5	1.8	2.32	0.9	2.1
7.5	0.5	1.7	2.23	0.9	1.9
8.0	0.5	1.7	1.92	0.9	1.6
8.5	0.5	1.6	1.95	0.8	1.6
9.0	0.5	1.5	1.58	0.8	1.2
9.5	0.5	1.3	1.17	0.7	0.8
10.0	0.5	1.3	1.14	0.7	0.7
10.5	0.5	0.9	0.54	0.5	0.2
11.0	0.8	0.8	0.05	0.6	0.0
12.0	1.0	0.5	0.01	0.5	0.0
13.0	0.5	0.0	0.00	0.0	0.0

Total Flow: **27**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Sunny, calm, ~80°s F
Location: STRE001
(Formerly STREB)

Date: 8/14/03
Gage reader: DWW/JGM

Start time: 1424 RP start (ft): NA

Finish time: NM RP end (ft): NA

Inst. read: NA

Remarks: Small tributary not measured, flow estimated at 0.6 cfs.

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.3	0.65	0.2	0.15
1.5	1.0	0.5	0.75	0.5	0.34
2.5	1.0	0.6	0.75	0.6	0.41
3.5	1.0	0.7	1.20	0.7	0.84
4.5	1.0	0.9	1.26	0.9	1.07
5.5	1.0	0.8	1.45	0.8	1.16
6.5	1.0	0.7	0.96	0.7	0.67
7.5	1.0	1.0	0.92	1.0	0.92
8.5	1.0	1.2	1.20	1.2	1.44
9.5	1.0	1.7	1.03	1.7	1.75
10.5	1.0	1.9	0.90	1.9	1.67
11.5	1.0	1.7	0.20	1.7	0.33
12.5	1.0	1.5	-0.19	1.5	-0.29
13.5	0.8	0.5	-0.14	0.4	-0.05
14.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **10.4**

With additional 0.6 cfs from unnamed tributary (see remarks): **11**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Overcast, ~30°s F
Location: STRE001
(Formerly STREB001)

Date: 10/29/03
Gage reader: DWW/JGM

Start time: 1300 RP start (ft): NA

Finish time: NM RP end (ft): NA

Inst. read (ft): NA

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.4	0.60	0.3	0.16
1.5	1.0	0.6	0.72	0.6	0.40
2.5	1.0	0.8	0.64	0.8	0.48
3.5	1.0	1.0	0.87	1.0	0.87
4.5	1.0	1.2	0.97	1.2	1.16
5.5	1.0	1.0	1.24	1.0	1.24
6.5	1.0	1.1	0.88	1.1	0.97
7.5	1.0	1.1	0.79	1.1	0.87
8.5	1.0	1.6	0.79	1.6	1.22
9.5	1.0	1.9	0.75	1.9	1.43
10.5	1.0	2.0	0.77	2.0	1.56
11.5	1.0	2.3	0.44	2.3	1.01
12.5	1.0	1.5	0.00	1.5	0.00
13.5	0.8	1.2	0.37	0.9	0.33
14.0	0.3	0.0	0.00	0.0	0.00

Total Flow: **12**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 4/7/05
Weather: **Gage reader:** RRE/PJS
Location: STRE001

Start time: 1420 RP start (ft): NA

Finish time: 1440 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.0
2.0	1.0	0.5	0.17	0.5	0.1
3.0	1.0	0.7	0.52	0.7	0.4
4.0	1.0	1.1	0.93	1.1	1.0
5.0	1.0	1.2	0.87	1.2	1.0
6.0	1.0	1.3	0.78	1.3	1.0
7.0	1.0	1.4	1.05	1.4	1.5
8.0	1.0	1.4	1.23	1.4	1.7
9.0	1.0	1.5	1.55	1.5	2.3
10.0	1.0	1.6	1.26	1.6	2.0
11.0	1.0	2.0	1.12	2.0	2.2
12.0	1.0	2.2	1.17	2.2	2.6
13.0	1.0	2.4	1.16	2.4	2.8
14.0	1.0	2.5	1.44	2.5	3.6
15.0	1.0	2.7	1.41	2.7	3.8
16.0	1.0	2.6	1.31	2.6	3.4
17.0	1.0	2.7	1.06	2.7	2.9
18.0	1.0	2.6	1.16	2.6	3.0
19.0	1.0	2.7	1.13	2.7	3.1
20.0	1.0	2.4	0.76	2.4	1.8
21.0	1.0	2.1	0.24	2.1	0.5
22.0	0.5	0.0	0.00	0.0	0.0

Total Flow: **41**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 6/20/05
Weather: Sunny, ~80°s F **Gage Reader:** RRE
Location: STRE001

Start time: 1700 RP start (ft): NA

Finish time: 1715 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
2.0	1.0	0.0	0.00	0.0	0.00
4.0	1.5	0.2	0.70	0.3	0.21
5.0	1.0	0.2	0.64	0.2	0.13
6.0	1.0	0.4	0.58	0.4	0.23
7.0	0.9	0.6	0.96	0.5	0.52
7.8	0.8	0.7	1.04	0.6	0.58
8.6	0.8	0.7	1.19	0.6	0.67
9.4	0.7	0.8	1.27	0.6	0.71
10.0	0.6	0.8	1.31	0.5	0.63
10.6	0.6	0.9	1.29	0.5	0.70
11.2	0.6	0.9	1.11	0.5	0.60
11.8	0.6	1.0	1.30	0.6	0.78
12.4	0.6	1.2	1.41	0.7	1.02
13.0	0.6	1.4	0.88	0.8	0.74
13.6	0.6	1.6	0.88	1.0	0.84
14.2	0.6	1.5	1.13	0.9	1.02
14.8	0.6	1.5	1.40	0.9	1.26
15.4	0.6	1.6	1.13	1.0	1.08
16.0	0.6	1.4	0.84	0.8	0.71
16.6	0.6	1.2	0.39	0.7	0.28
17.2	0.8	0.9	0.74	0.7	0.53
18.2	1.0	0.5	0.41	0.5	0.21
19.2	0.5	0.0	0.00	0.0	0.00

Total Flow: **13**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 10/27/04
Weather: Cloudy, light breeze, ~40°s F **Gage Reader:** RRE
Location: STRE005

Start time: 1507 RP start (ft): NA

Finish time: 1520 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.8	0.4	0.0	0.00	0.0	0.00
1.6	0.6	0.2	0.00	0.1	0.00
2.0	0.4	0.3	0.00	0.1	0.00
2.4	0.4	0.4	0.03	0.2	0.00
2.8	0.4	0.4	0.05	0.2	0.01
3.2	0.4	0.4	0.10	0.2	0.02
3.6	0.4	0.4	0.14	0.2	0.02
4.0	0.4	0.3	0.15	0.1	0.02
4.4	0.4	0.3	0.17	0.1	0.02
4.8	0.4	0.3	0.24	0.1	0.03
5.2	0.4	0.4	0.37	0.2	0.06
5.6	0.4	0.5	0.43	0.2	0.09
6.0	0.4	0.6	0.53	0.2	0.13
6.4	0.4	0.6	0.58	0.2	0.14
6.8	0.4	0.6	0.50	0.2	0.12
7.2	0.4	0.4	0.41	0.2	0.07
7.6	0.6	0.2	0.15	0.1	0.02
8.4	0.4	0.0	0.00	0.0	0.00

Total Flow: **0.7**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/18/05
Weather: Breezy, ~50°s F **Gage Reader:** RRE
Location: STRE005

Start time: 1645 RP start (ft): NA

Finish time: 1700 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.2	0.0	0.00	0.0	0.00
1.3	0.3	0.2	0.01	0.1	0.00
1.6	0.3	0.3	0.26	0.1	0.02
1.9	0.3	0.4	0.23	0.1	0.03
2.2	0.3	0.4	0.37	0.1	0.04
2.5	0.3	0.4	0.50	0.1	0.06
2.8	0.3	0.4	0.50	0.1	0.06
3.1	0.3	0.4	0.63	0.1	0.08
3.4	0.3	0.3	0.64	0.1	0.06
3.7	0.3	0.3	0.68	0.1	0.06
4.0	0.3	0.3	0.11	0.1	0.01
4.3	0.3	0.2	0.01	0.1	0.00
4.6	0.2	0.0	0.00	0.0	0.00

Total Flow: **0.4**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Sunny, ~80°s F
Location: STRE005

Date: 6/20/05
Gage Reader: RRE

Start time: 1600 RP start (ft): NA

Finish time: 1615 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.2	0.2	0.0	0.00	0.0	0.00
0.6	0.4	0.2	0.16	0.1	0.01
1.0	0.4	0.2	0.29	0.1	0.02
1.4	0.4	0.3	0.24	0.1	0.03
1.8	0.4	0.3	0.47	0.1	0.05
2.1	0.3	0.3	0.49	0.1	0.04
2.4	0.3	0.4	0.81	0.1	0.10
2.7	0.3	0.4	0.86	0.1	0.10
3.0	0.3	0.4	0.60	0.1	0.07
3.3	0.3	0.3	0.46	0.1	0.04
3.6	0.3	0.3	0.56	0.1	0.05
3.9	0.3	0.3	0.39	0.1	0.04
4.2	0.3	0.2	0.29	0.1	0.02
4.5	0.3	0.2	0.17	0.1	0.01
4.8	0.2	0.0	0.00	0.0	0.00

Total Flow: **0.6**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/17/05
Weather: Light breeze, ~40°s F **Gage Reader:** RRE
Location: STRE006

Start time: 1625 RP start (ft): NA

Finish time: 1635 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.7	0.2	0.0	0.00	0.0	0.00
1.0	0.3	0.3	0.21	0.1	0.02
1.3	0.3	0.3	0.40	0.1	0.04
1.6	0.3	0.3	0.43	0.1	0.04
1.9	0.3	0.3	0.48	0.1	0.04
2.2	0.3	0.3	0.46	0.1	0.04
2.5	0.3	0.3	0.53	0.1	0.05
2.8	0.3	0.3	0.56	0.1	0.05
3.1	0.3	0.3	0.60	0.1	0.05
3.4	0.3	0.3	0.29	0.1	0.03
3.7	0.3	0.2	0.49	0.1	0.03
4.0	0.3	0.2	0.23	0.1	0.01
4.3	0.3	0.1	0.00	0.0	0.00
4.6	0.2	0.0	0.00	0.0	0.00

Total Flow: **0.4**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 6/20/05
Weather: Sunny, ~80°s F **Gage Reader:** RRE
Location: STRE009

Start time: 1815 RP start (ft): NA

Finish time: 1830 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.3	0.00	0.2	0.00
1.0	1.0	0.3	0.01	0.3	0.00
2.0	0.7	1.0	0.07	0.7	0.05
2.4	0.4	1.0	0.11	0.4	0.04
2.8	0.4	1.1	0.09	0.4	0.04
3.2	0.4	1.2	0.13	0.5	0.06
3.6	0.4	1.2	0.30	0.5	0.14
4.0	0.4	1.4	0.61	0.6	0.34
4.4	0.4	1.3	0.86	0.5	0.45
4.8	0.4	1.2	1.02	0.5	0.49
5.2	0.4	1.2	0.92	0.5	0.44
5.6	0.4	1.1	0.88	0.4	0.39
6.0	0.4	1.0	0.79	0.4	0.32
6.4	0.4	1.0	0.72	0.4	0.29
6.8	0.4	0.8	0.77	0.3	0.25
7.2	0.4	0.7	0.63	0.3	0.18
7.6	0.4	0.5	0.29	0.2	0.06
8.0	0.2	0.5	0.29	0.1	0.03

Total Flow: **3.6**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/17/05
Weather: Light breeze, ~40°s F **Gage Reader:** RRE
Location: STRE010

Start time: 1525 RP start (ft): NA

Finish time: 1545 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.2	0.0	0.00	0.0	0.00
1.4	0.4	0.5	0.34	0.2	0.07
1.8	0.4	0.6	0.76	0.2	0.18
2.2	0.4	0.7	1.00	0.3	0.28
2.6	0.4	0.7	1.20	0.3	0.34
3.0	0.4	0.6	1.24	0.2	0.30
3.4	0.4	0.6	1.17	0.2	0.28
3.8	0.4	0.6	1.16	0.2	0.28
4.2	0.4	0.5	0.93	0.2	0.19
4.6	0.4	0.6	0.89	0.2	0.21
5.0	0.4	0.6	0.92	0.2	0.22
5.4	0.4	0.5	0.84	0.2	0.17
5.8	0.4	0.6	0.59	0.2	0.14
6.2	0.4	0.5	0.68	0.2	0.14
6.6	0.4	0.4	0.63	0.2	0.10
7.0	0.4	0.4	0.74	0.2	0.12
7.4	0.4	0.4	0.62	0.2	0.10
7.8	0.2	0.0	0.00	0.0	0.00

Total Flow: **3.1**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 6/20/05
Weather: Sunny, ~80°s F **Gage Reader:** RRE
Location: STRE010

Start time: 1740 RP start (ft): NA

Finish time: 1800 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.7	0.2	0.14	0.1	0.02
2.4	0.4	0.3	0.31	0.1	0.04
2.8	0.4	0.3	0.38	0.1	0.05
3.2	0.4	0.3	0.46	0.1	0.06
3.6	0.4	0.4	0.38	0.2	0.06
4.0	0.4	0.4	0.53	0.2	0.08
4.4	0.4	0.4	0.58	0.2	0.09
4.8	0.4	0.4	0.72	0.2	0.12
5.2	0.4	0.5	0.74	0.2	0.15
5.6	0.4	0.6	0.82	0.2	0.20
6.0	0.4	0.7	0.87	0.3	0.24
6.4	0.4	0.7	0.86	0.3	0.24
6.8	0.4	0.8	0.79	0.3	0.25
7.2	0.4	0.8	0.84	0.3	0.27
7.6	0.4	0.8	0.89	0.3	0.28
8.0	0.7	0.7	0.95	0.5	0.47
9.0	1.0	0.2	0.26	0.2	0.05
10.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **2.7**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/18/05
Weather: Breezy, ~50°s F **Gage Reader:** RRE
Location: STRE011

Start time: 1135 RP start (ft): NA

Finish time: 1145 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.5	0.0	0.00	0.0	0.00
1.0	1.0	0.2	0.10	0.2	0.02
2.0	0.7	0.6	0.39	0.4	0.16
2.4	0.4	0.7	0.32	0.3	0.09
2.8	0.4	0.9	0.37	0.4	0.13
3.2	0.4	0.9	0.56	0.4	0.20
3.6	0.4	0.9	1.36	0.4	0.49
4.0	0.4	0.8	1.10	0.3	0.35
4.4	0.4	0.7	1.02	0.3	0.29
4.8	0.4	0.6	1.16	0.2	0.28
5.2	0.4	0.6	1.24	0.2	0.30
5.6	0.4	0.6	1.40	0.2	0.34
6.0	0.4	0.5	1.20	0.2	0.24
6.4	0.4	0.4	1.02	0.2	0.16
6.8	0.4	0.3	0.60	0.1	0.07
7.2	0.4	0.2	0.54	0.1	0.04
7.6	0.4	0.2	0.53	0.1	0.04
8.0	0.2	0.0	0.00	0.0	0.00

Total Flow: **3.2**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/18/05
Weather: Breezy, ~50°s F **Gage Reader:** RRE
Location: STRE012

Start time: 1215 RP start (ft): NA

Finish time: 1230 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.2	0.0	0.00	0.0	0.00
1.4	0.4	0.2	0.58	0.1	0.05
1.8	0.4	0.3	1.12	0.1	0.13
2.2	0.4	0.3	0.91	0.1	0.11
2.6	0.4	0.4	1.01	0.2	0.16
3.0	0.4	0.4	1.20	0.2	0.19
3.4	0.4	0.5	1.58	0.2	0.32
3.8	0.4	0.5	1.57	0.2	0.31
4.2	0.4	0.4	1.59	0.2	0.25
4.6	0.4	0.4	1.48	0.2	0.24
5.0	0.4	0.4	1.44	0.2	0.23
5.4	0.4	0.3	1.22	0.1	0.15
5.8	0.4	0.3	1.16	0.1	0.14
6.2	0.4	0.5	1.12	0.2	0.22
6.6	0.4	0.5	1.01	0.2	0.20
7.0	0.4	0.4	0.84	0.2	0.13
7.4	0.4	0.3	0.80	0.1	0.10
7.8	0.2	0.0	0.00	0.0	0.00

Total Flow: **2.9**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/17/05
Weather: Light breeze, ~40°s F **Gage Reader:** RRE
Location: STRE013

Start time: 1250 RP start (ft): NA

Finish time: 1305 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.3	0.2	0.0	0.00	0.0	0.00
0.6	0.3	0.3	0.03	0.1	0.00
0.9	0.3	0.3	0.98	0.1	0.09
1.2	0.3	0.3	1.27	0.1	0.11
1.5	0.3	0.3	1.52	0.1	0.14
1.8	0.3	0.3	1.51	0.1	0.14
2.1	0.3	0.3	1.42	0.1	0.13
2.4	0.3	0.4	1.21	0.1	0.15
2.7	0.3	0.4	1.17	0.1	0.14
3.0	0.3	0.4	1.12	0.1	0.13
3.3	0.3	0.4	1.06	0.1	0.13
3.6	0.3	0.5	1.15	0.2	0.17
3.9	0.3	0.5	1.14	0.2	0.17
4.2	0.3	0.5	0.88	0.2	0.13
4.5	0.3	0.4	0.70	0.1	0.08
4.8	0.3	0.3	0.10	0.1	0.01
5.1	0.2	0.0	0.00	0.0	0.00

Total Flow: **1.7**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 5/17/05
Weather: Light breeze, ~40°s F **Gage Reader:** RRE
Location: STRE014

Start time: 1410 RP start (ft): NA

Finish time: 1415 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.2	0.0	0.00	0.0	0.00
0.3	0.3	0.2	1.25	0.0	0.06
0.6	0.3	0.2	1.12	0.0	0.05
0.9	0.3	0.2	1.74	0.1	0.10
1.2	0.3	0.2	0.51	0.1	0.03
1.5	0.2	0.0	0.00	0.0	0.00
			Total Flow:		**0.2**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 6/20/05
Weather: Sunny, ~80°s F **Gage Reader:** RRE
Location: STRW001

Start time: 1357 RP start (ft): NA

Finish time: 1408 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.7	0.2	1.62	0.1	0.23
2.4	0.4	0.3	1.77	0.1	0.21
2.8	0.4	0.4	1.72	0.2	0.28
3.2	0.4	0.4	2.05	0.2	0.33
3.6	0.4	0.5	1.76	0.2	0.35
4.0	0.4	0.7	1.95	0.3	0.55
4.4	0.4	0.7	1.74	0.3	0.49
4.8	0.4	0.6	1.70	0.2	0.41
5.2	0.4	0.5	1.95	0.2	0.39
5.6	0.4	0.2	1.91	0.1	0.15
6.0	0.7	0.2	0.75	0.1	0.11
7.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **3.5**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Overcast, ~30°s F
Location: STRM003
(Formerly STRMAIN)

Date: 10/29/03
Gage reader: DWW/JGM

Start time: 1130 RP start (ft): NA

Finish time: NM RP end (ft): NA

Inst. read (ft): NA

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	2.0	0.10	1.5	0.15
1.5	1.0	2.3	0.81	2.3	1.82
2.5	1.0	1.9	0.59	1.9	1.12
3.5	1.0	2.0	0.40	2.0	0.80
4.5	1.0	1.8	0.56	1.8	1.01
5.5	1.0	1.2	0.47	1.2	0.56
6.5	1.0	0.7	0.08	0.7	0.06
7.5	0.8	0.3	-0.03	0.2	-0.01
8.0	0.5	0.3	-0.01	0.2	0.00
8.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **5.5**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 8/14/03
Weather: Sunny, calm, ~80°s F **Gage reader:** DWW/JGM
Location: STRM007
(Formerly STRMAINTRIB)

Start time: 1323 RP start (ft): NA

Finish time: NM RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.2	-0.05	0.1	0.00
0.5	0.8	0.4	-0.01	0.3	0.00
1.5	1.0	0.4	-0.02	0.4	-0.01
2.5	1.0	0.3	-0.02	0.3	-0.01
3.5	1.0	0.3	0.09	0.3	0.02
4.5	1.0	0.3	0.63	0.3	0.19
5.5	0.8	0.4	0.87	0.3	0.23
6.0	0.4	0.3	0.70	0.1	0.06
6.2	0.2	0.2	0.32	0.0	0.01
6.4	0.1	0.0	0.00	0.0	0.00

Total Flow: **0.5**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Overcast, ~30°s F
Location: STRM007
(Formerly STRMAINTRIB)

Date: 10/29/03
Gage reader: DWW/JGM

Start time: NM RP start (ft): NA

Finish time: NM RP end (ft): NA

Inst. read (ft): NA

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.5	0.01	0.4	0.00
1.5	1.0	0.5	-0.01	0.5	-0.01
2.5	1.0	0.3	0.10	0.3	0.03
3.5	1.0	0.4	0.23	0.4	0.08
4.5	1.0	0.4	0.10	0.4	0.04
5.5	0.8	0.3	0.12	0.2	0.03
6.0	0.5	0.3	0.07	0.2	0.01
6.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **0.2**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 10/27/04
Weather: Cloudy, light breeze, ~40°s F **Gage Reader:** RRE
Location: STRM007

Start time: 1450 RP start (ft): NA

Finish time: 1500 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.7	0.1	0.50	0.1	0.04
2.4	0.4	0.1	0.75	0.0	0.03
2.8	0.4	0.1	1.00	0.0	0.04
3.2	0.4	0.1	1.16	0.0	0.05
3.6	0.4	0.1	1.36	0.0	0.05
4.0	0.4	0.2	1.04	0.1	0.06
4.4	0.4	0.2	1.31	0.1	0.08
4.8	0.4	0.2	0.70	0.1	0.04
5.2	0.4	0.2	0.87	0.1	0.05
5.6	0.4	1.2	0.78	0.5	0.36
6.0	0.4	0.1	0.53	0.0	0.02
6.4	0.4	0.1	0.00	0.0	0.00
6.8	0.2	0.0	0.0	0.0	0.00

Total Flow: **0.8**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 10/27/04
Weather: Mostly cloudy, breezy, ~40°s F **Gage Reader:** RRE
Location: STRM008

Start time: 1154 RP start (ft): NA

Finish time: 1202 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.2	0.0	0.00	0.0	0.00
0.4	0.3	0.2	0.35	0.0	0.02
0.6	0.2	0.2	0.49	0.0	0.02
0.8	0.2	0.3	1.23	0.1	0.06
1.0	0.2	0.3	1.43	0.1	0.09
1.2	0.2	0.3	1.10	0.1	0.07
1.4	0.2	0.3	0.81	0.1	0.04
1.6	0.2	0.2	0.27	0.0	0.01
1.8	0.2	0.2	0.13	0.0	0.00
2.0	0.2	0.1	0.00	0.0	0.00
2.2	0.1	0.0	0.00	0.0	0.00

Total Flow: **0.3**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 10/27/04
Weather: Partly cloudy, light wind, ~40°s F **Gage Reader:** RRE
Location: STRM009

Start time: 1210 RP start (ft): NA

Finish time: 1218 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.4	0.1	0.0	0.00	0.0	0.00
0.6	0.2	0.2	0.16	0.0	0.01
0.8	0.2	0.2	0.32	0.0	0.01
1.0	0.2	0.2	0.54	0.0	0.02
1.2	0.2	0.2	0.79	0.0	0.03
1.4	0.2	0.2	0.80	0.0	0.03
1.6	0.2	0.2	0.72	0.0	0.03
1.8	0.2	0.2	0.37	0.0	0.01
2.0	0.2	0.2	0.26	0.0	0.01
2.2	0.2	0.2	0.09	0.0	0.00
2.4	0.2	0.1	0.03	0.0	0.00
2.6	0.1	0.0	0.00	0.0	0.00

Total Flow: **0.2**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 8/14/03
Weather: Sunny, calm, ~80°s F **Gage reader:** DWW/JGM
Location: STRW001
(Formerly STRWB)

Start time: 1230 RP start (ft): NA

Finish time: NM RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.7	0.40	0.2	0.07
0.5	0.5	0.8	0.34	0.4	0.13
1.0	0.8	1.0	0.30	0.8	0.23
2.0	1.0	1.1	0.55	1.1	0.58
3.0	1.0	1.3	0.60	1.3	0.78
4.0	1.0	1.1	0.60	1.1	0.63
5.0	1.0	1.4	0.45	1.4	0.63
6.0	1.0	1.1	0.06	1.1	0.07
7.0	0.5	0.1	0.00	0.1	0.00

Total Flow: **3.1**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES
Weather: Overcast, ~30°s F
Location: STRW001
(Formerly STRWB)

Date: 10/29/03
Gage reader: DWW/JGM

Start time: 1230 RP start (ft): NA

Finish time: NM RP end (ft): NA

Inst. read (ft): NA

Remarks:

Meter units: ft/sec
Flow period: 40 sec

Flow Measurement

Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
0.0	0.3	0.0	0.00	0.0	0.00
0.5	0.8	0.9	0.54	0.7	0.36
1.5	1.0	1.3	0.75	1.3	0.94
2.5	1.0	1.4	0.74	1.4	1.04
3.5	1.0	1.2	0.67	1.2	0.80
4.5	1.0	1.3	0.41	1.3	0.53
5.5	1.0	1.2	0.54	1.2	0.62
6.5	1.0	0.8	0.22	0.8	0.17
7.5	0.8	0.4	-0.01	0.3	0.00
8.0	0.5	0.4	-0.02	0.2	0.00
8.5	0.3	0.0	0.00	0.0	0.00

Total Flow: **4.5**

North Jackson Company
Flow Measurement Log

Proj. Name: Eagle BES **Date:** 6/20/05
Weather: Sunny, ~80°s F **Gage Reader:** RRE
Location: STRW001

Start time: 1357 RP start (ft): NA

Finish time: 1408 RP end (ft): NA

Inst. read: NA

Remarks:

Meter units: ft/sec
Flow Measurement **Flow period:** 40 sec

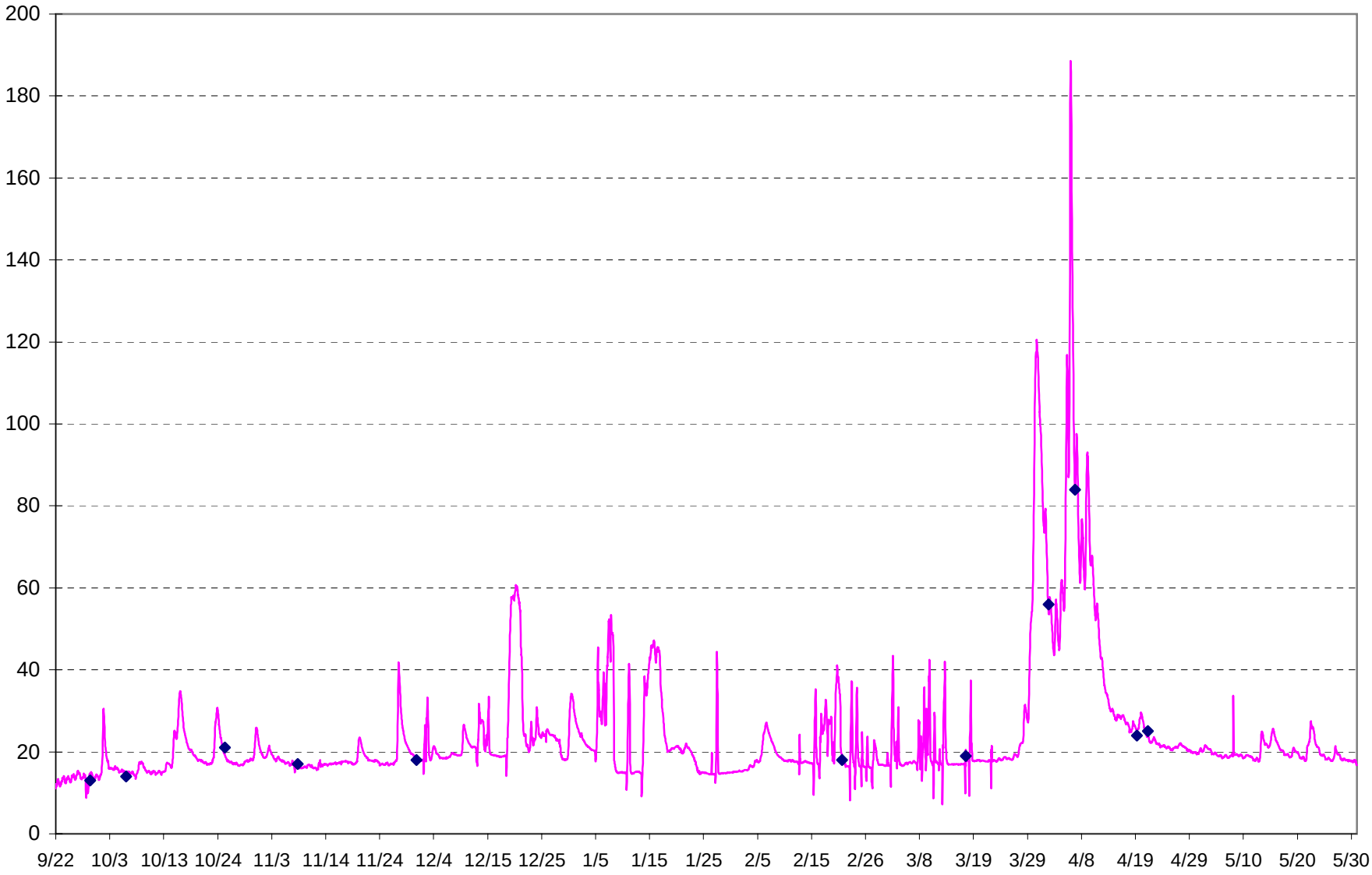
Distance from Initial Point (ft)	Width (ft)	Stream Depth (ft)	Velocity at Point (ft/s)	Area (ft^2)	Flow (cfs)
1.0	0.5	0.0	0.00	0.0	0.00
2.0	0.7	0.2	1.62	0.1	0.23
2.4	0.4	0.3	1.77	0.1	0.21
2.8	0.4	0.4	1.72	0.2	0.28
3.2	0.4	0.4	2.05	0.2	0.33
3.6	0.4	0.5	1.76	0.2	0.35
4.0	0.4	0.7	1.95	0.3	0.55
4.4	0.4	0.7	1.74	0.3	0.49
4.8	0.4	0.6	1.70	0.2	0.41
5.2	0.4	0.5	1.95	0.2	0.39
5.6	0.4	0.2	1.91	0.1	0.15
6.0	0.7	0.2	0.75	0.1	0.11
7.0	0.5	0.0	0.00	0.0	0.00

Total Flow: **3.5**

APPENDIX F

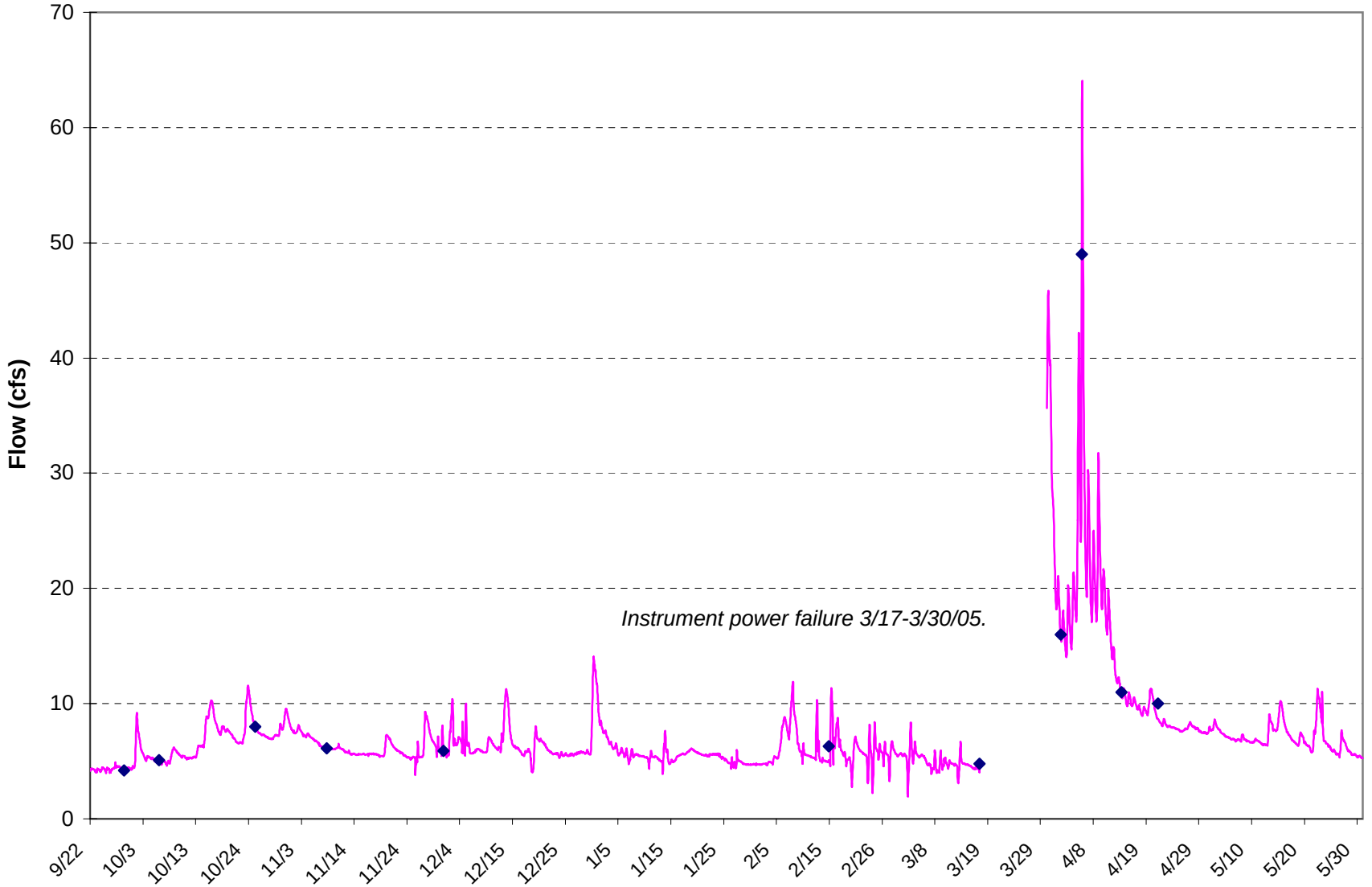
Hourly Hydrographs with Discrete Flow Measurements

Appendix F
Hourly Hydrographs with Discrete Flow Measurements
Salmon Trout River Monitoring Location STRE002
September 2004 - May 2005
Eagle Project



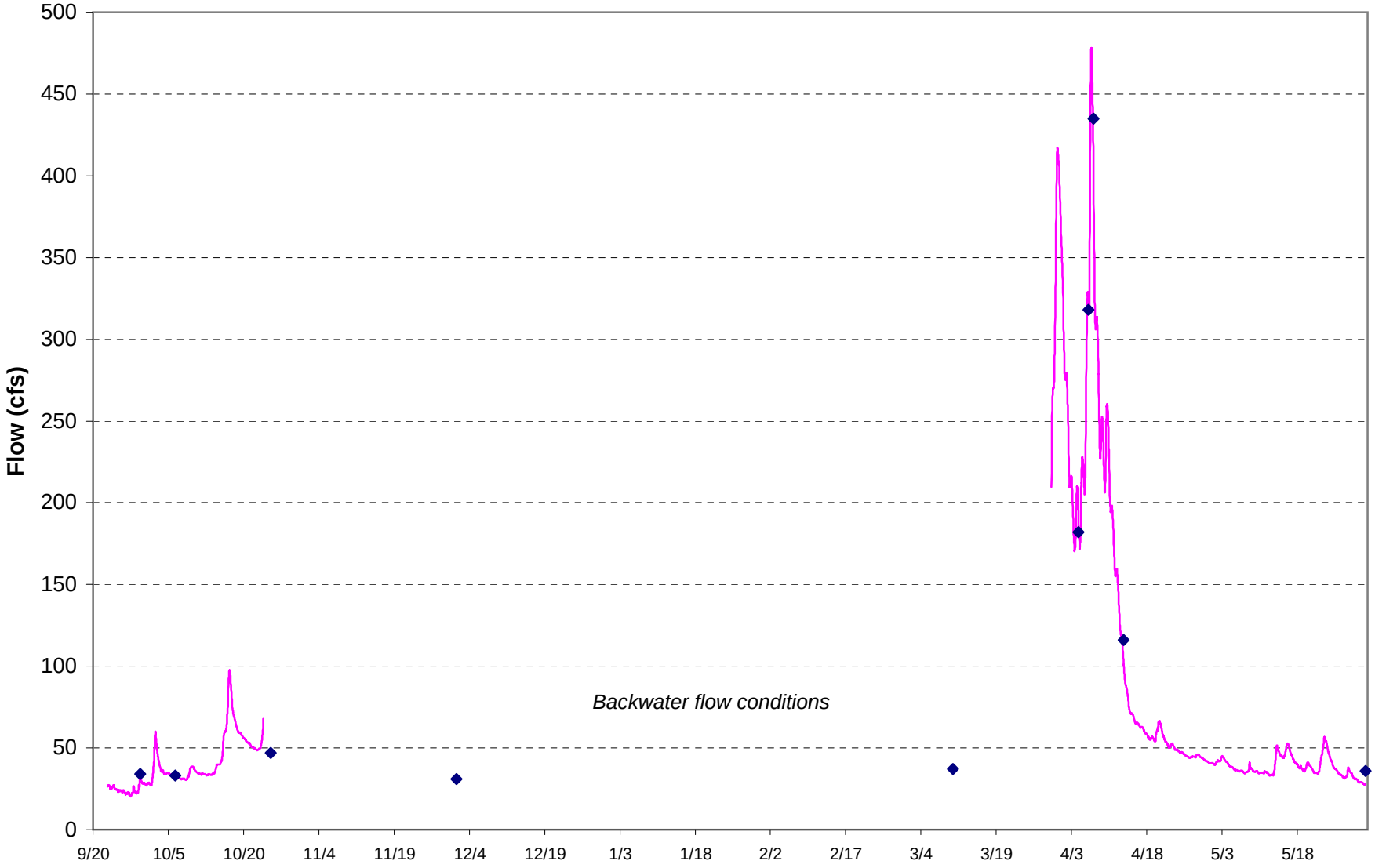
Hourly Hydrographs With Discrete Measurements: STRE002

Appendix F
Hourly Hydrographs with Discrete Flow Measurements
Salmon Trout River Monitoring Location STRM004
September 2004 - May 2005
Eagle Project



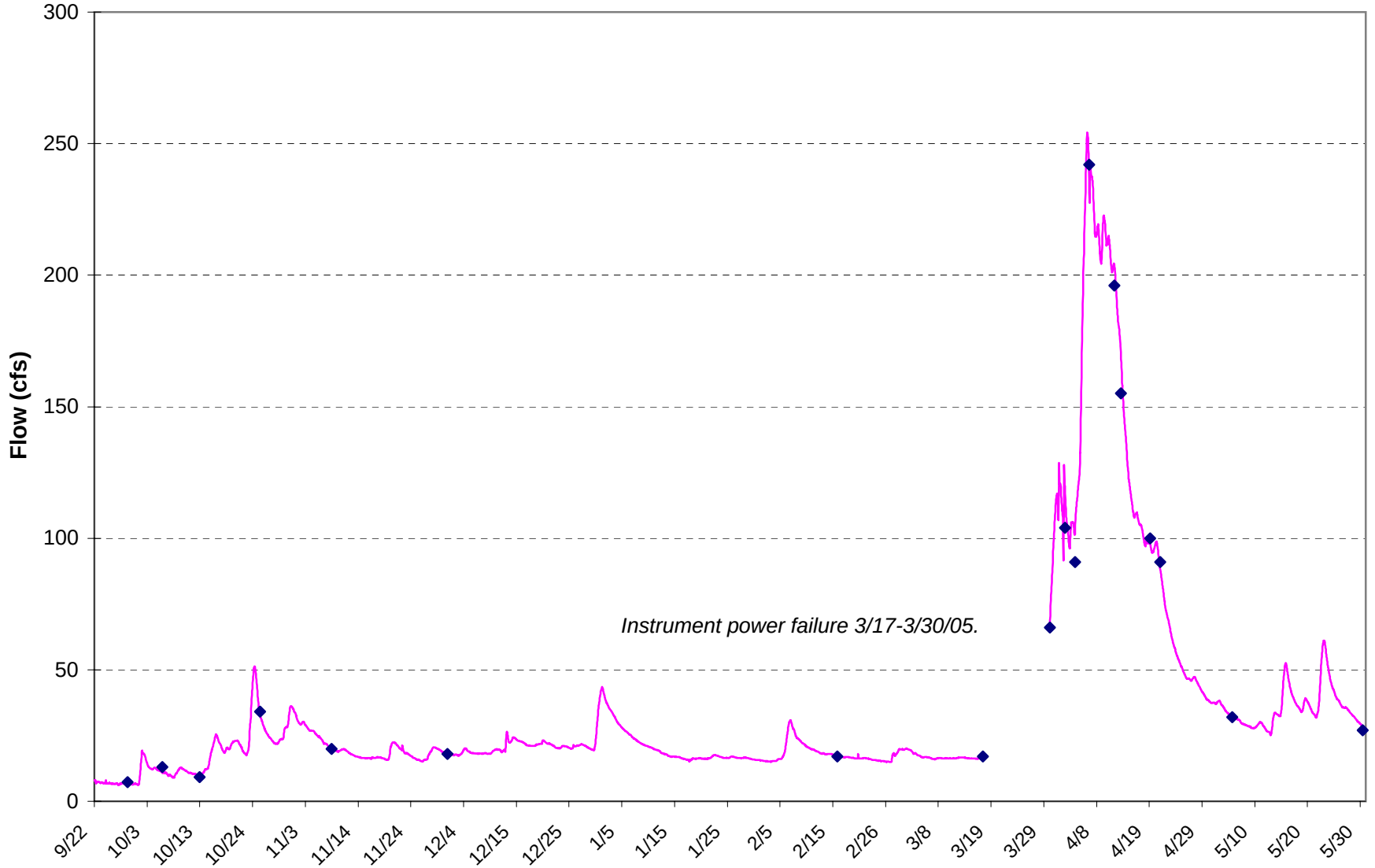
Hourly Hydrographs With Discrete Measurements: STRM004

Appendix F
Hourly Hydrographs with Discrete Flow Measurements
Salmon Trout River Monitoring Location STRM005
September 2004 - May 2005
Eagle Project



Hourly Hydrographs With Discrete Measurements: STRM005

Appendix F
Hourly Hydrographs with Discrete Flow Measurements
Yellow Dog River Monitoring Location YDRM002
September 2004 - May 2005
Eagle Project

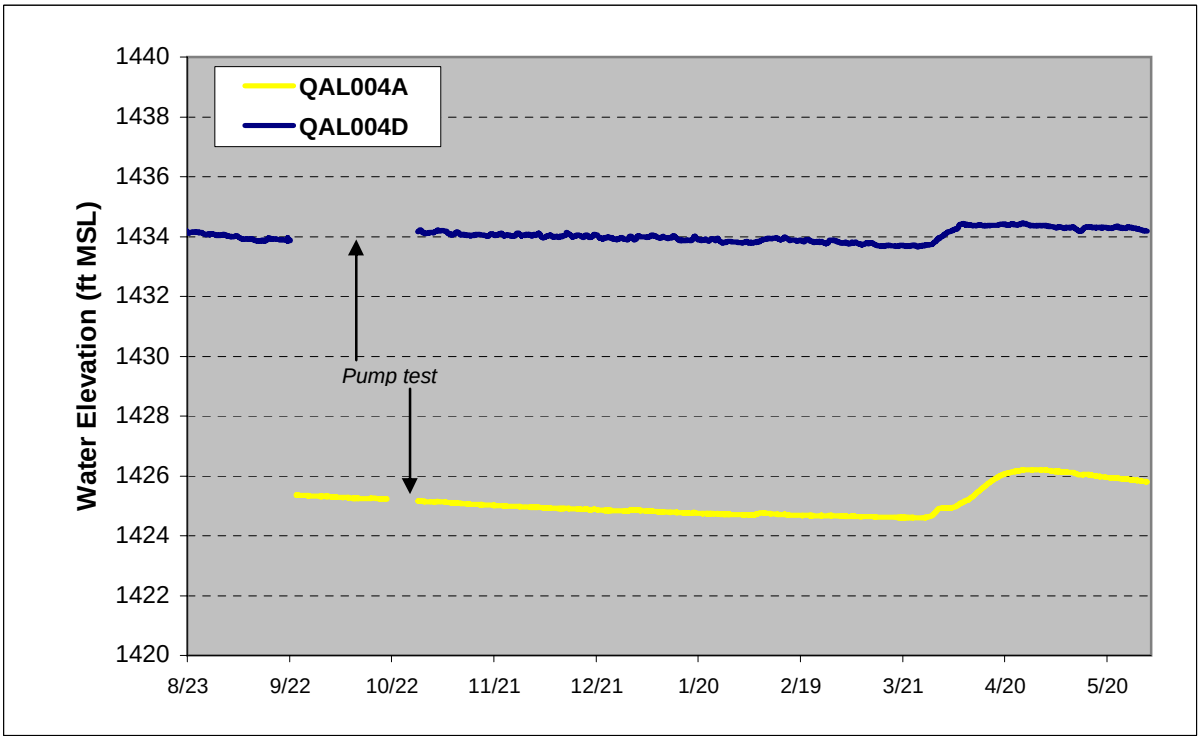


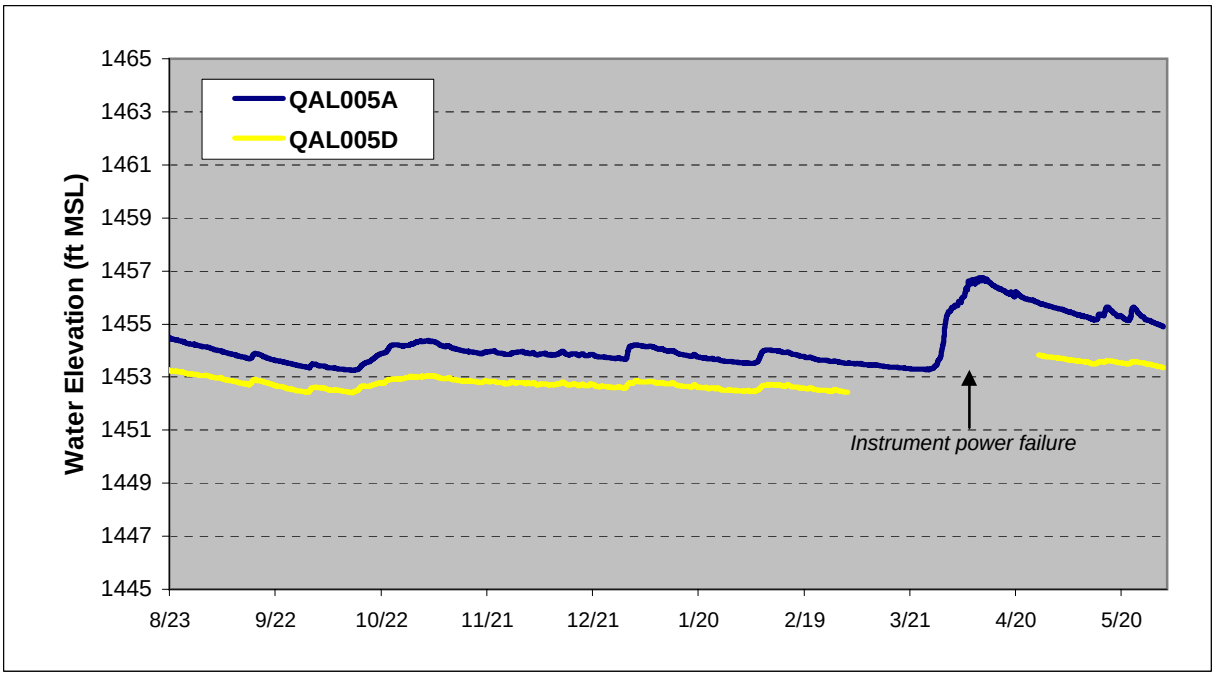
Hourly Hydrographs With Discrete Measurements: YDRM002

APPENDIX G

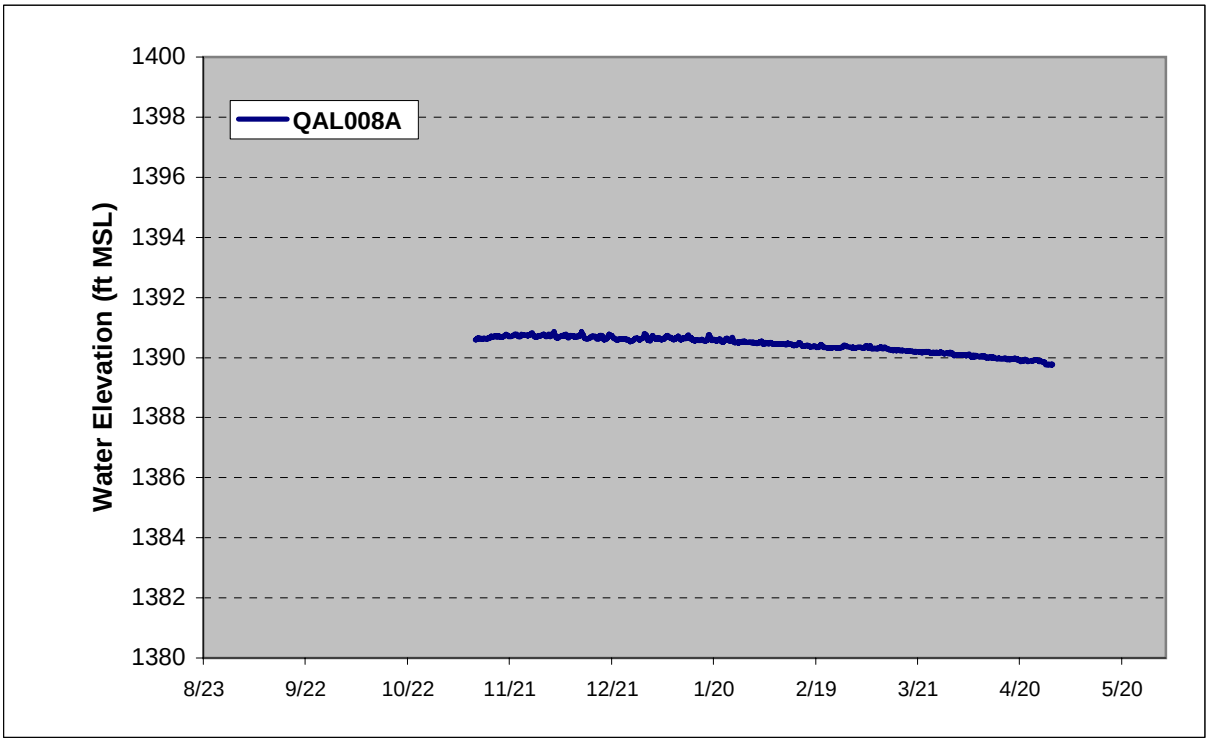
Continuous Groundwater Monitoring Data

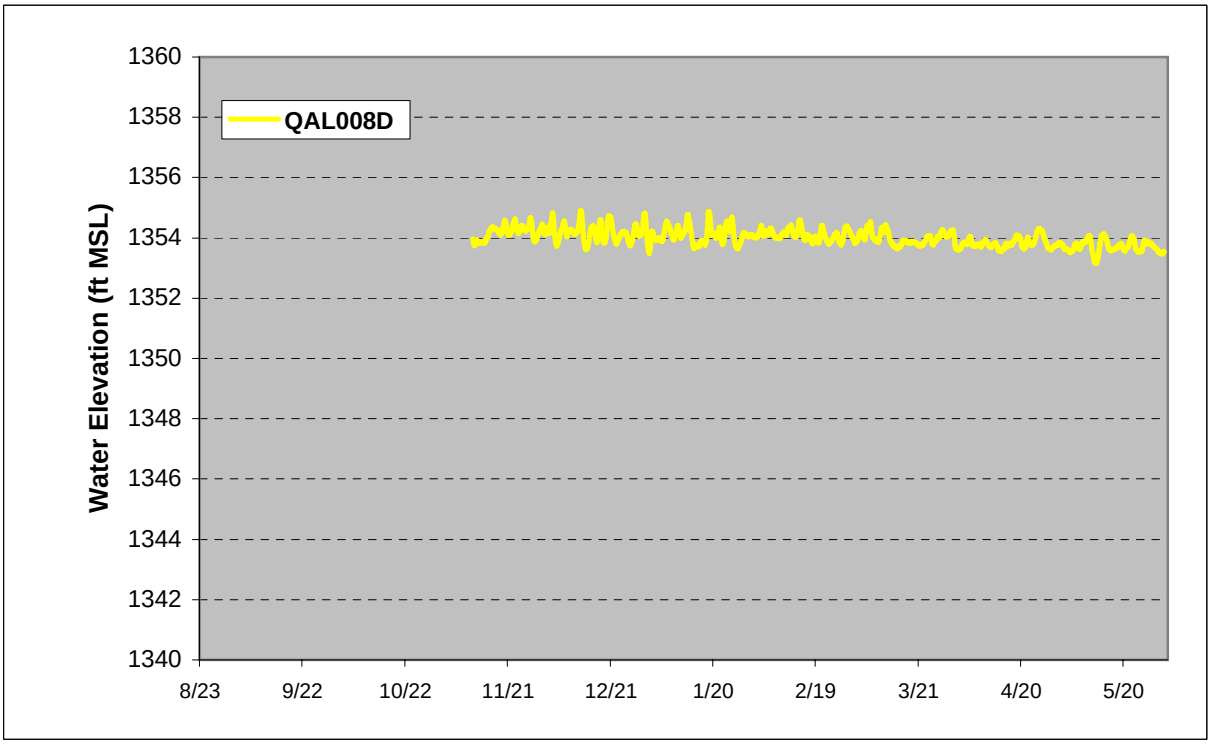
Appendix G
Continuous Groundwater Monitoring Data
Hourly Water Elevations QAL004A/D and QAL005A/D
August 2004 - May 2005
Eagle Project



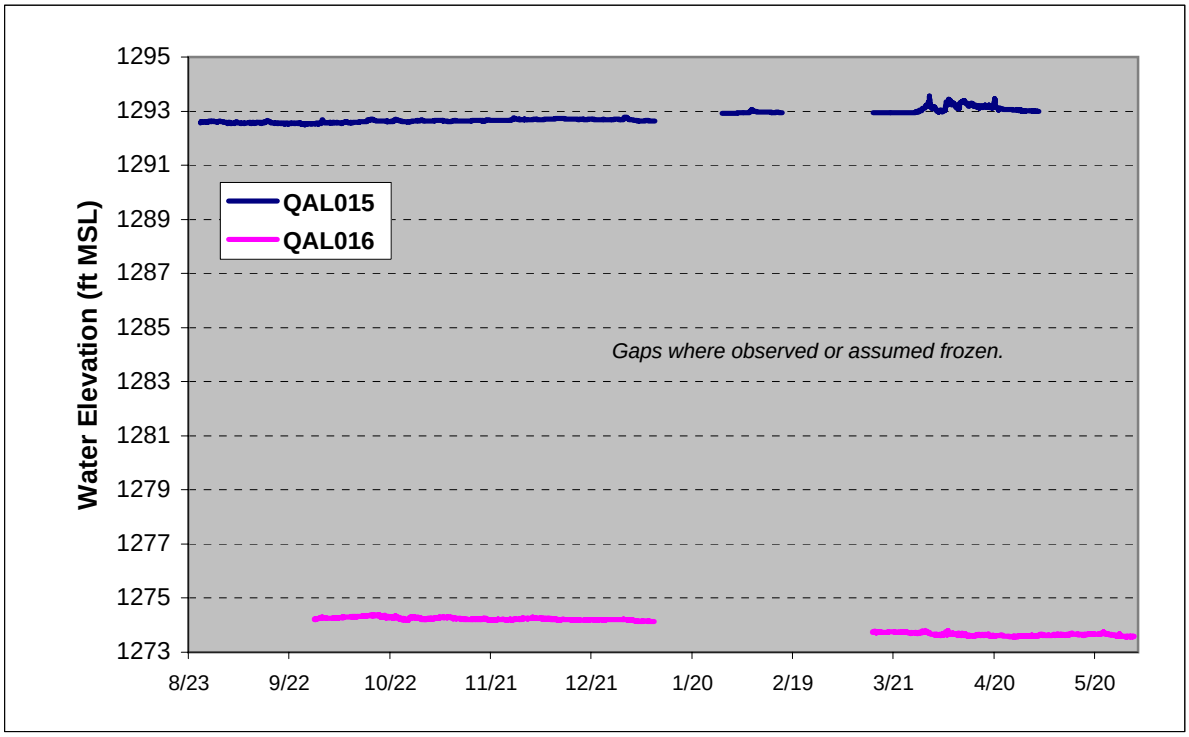


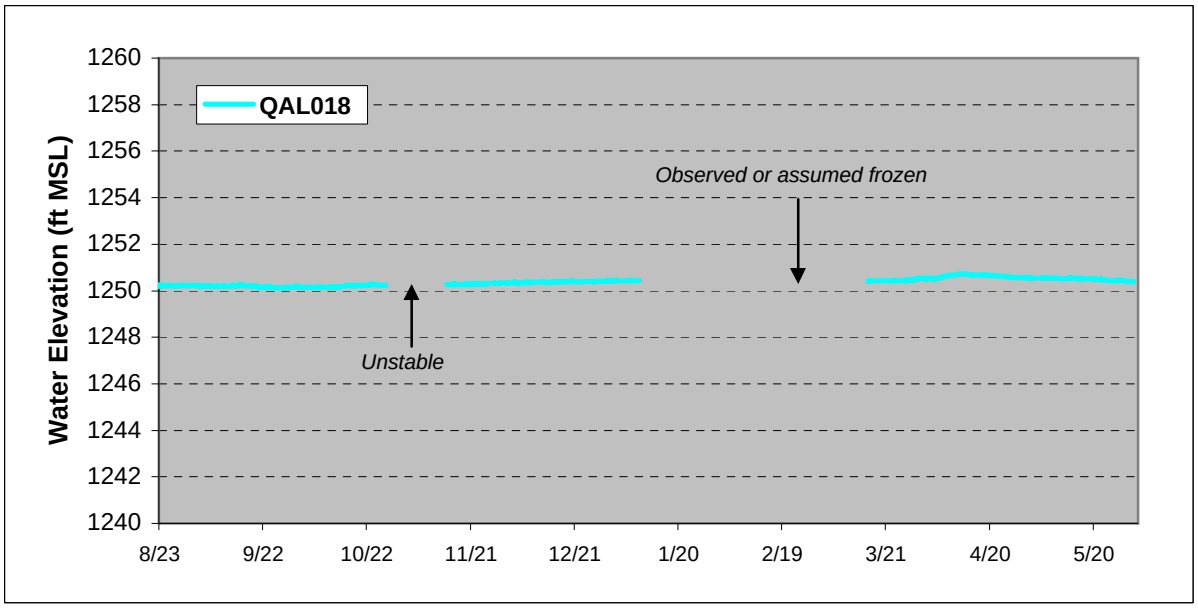
Appendix G
Continuous Groundwater Monitoring Data
Hourly Water Elevations QAL008A/D
August 2004 - May 2005
Eagle Project



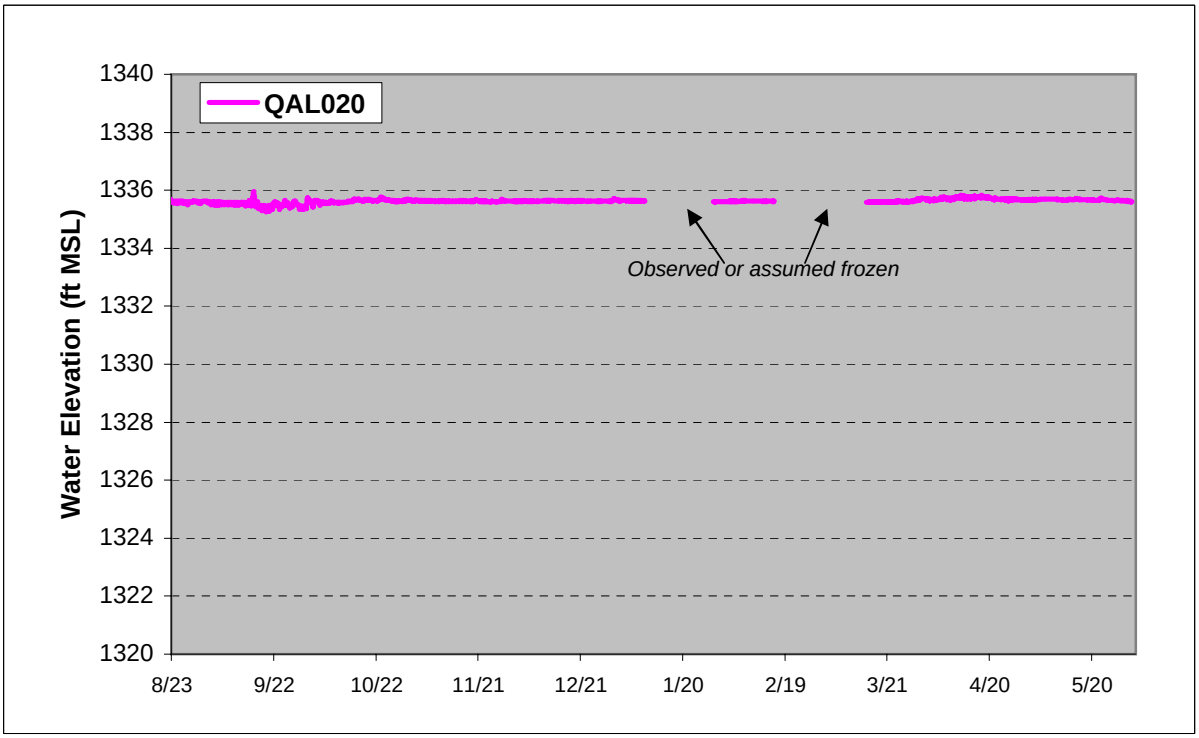


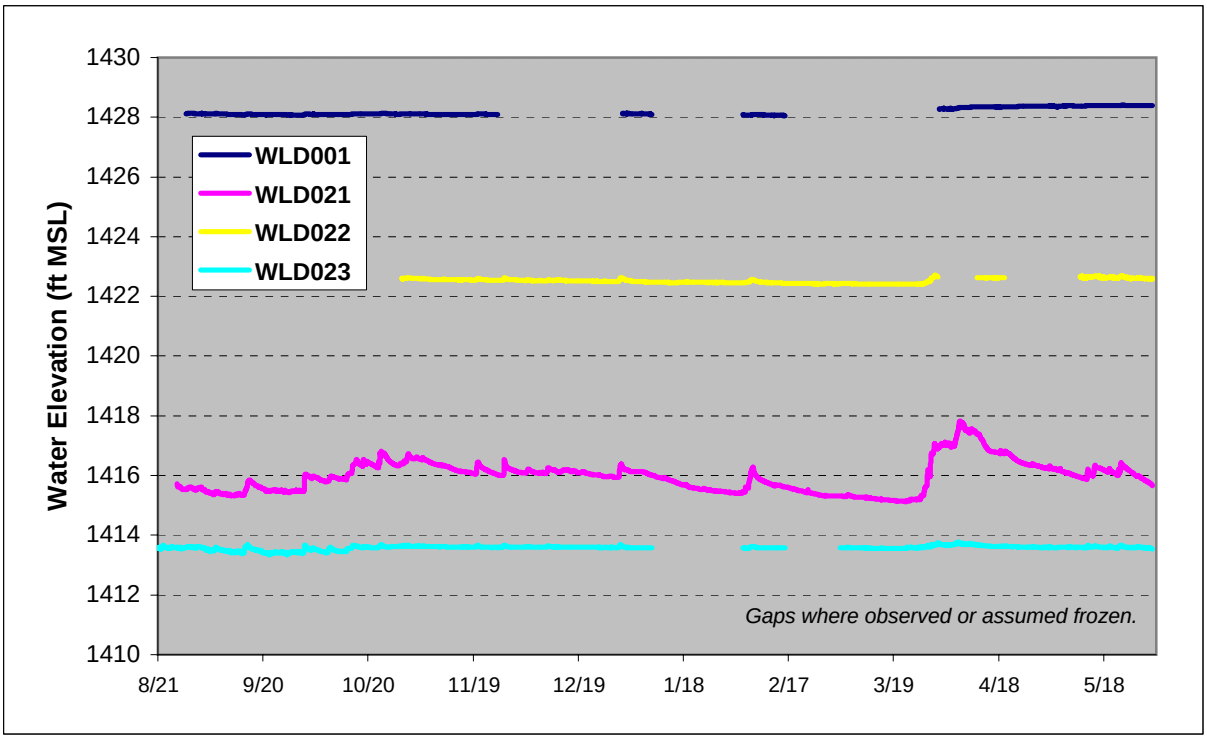
Appendix G
Continuous Groundwater Monitoring Data
Hourly Water Elevations QAL015, QAL016 and QAL018
August 2004 - May 2005
Eagle Project





Appendix G
Continuous Groundwater Monitoring Data
Hourly Water Elevations QAL020, WLD001, WLD021, WLD022 and WLD023
August 2004 - May 2005
Eagle Project





APPENDIX H

Quality Control Report

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Fall Rain Runoff 2002
Eagle Project

Parameter	Units	STR002	STR002 Duplicate
Organics (BTEX)			
Benzene	µg/L	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0
Xylene (Total)	µg/L	<3.0	<3.0
Metals/Inorganics			
Aluminum, Total	µg/L	<200	<200
Iron, Total	µg/L	**180**	**180**
Lithium, Total	µg/L	<20	<20
Antimony, Total	µg/L	<2.0	<2.0
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Beryllium, Total	µg/L	<1.0	<1.0
Boron, Total	µg/L	<50	<50
Cadmium, Total	µg/L	<0.2	<0.2
Chromium, Total	µg/L	<1.0	<1.0
Cobalt, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Lead, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	<10	<10
Molybdenum, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Selenium, Total	µg/L	<2.0	<2.0
Silver, Total	µg/L	<0.2	<0.2
Zinc, Total	µg/L	<10	<10
Mercury, Total	ng/L	**1.530**	**1.350**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**30**	**25**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	**0.06**	**0.06**
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	**13**
Sulfide	mg/L	<1.0	<1.0
Major Cations			
Calcium, Dissolved	mg/L	**7.4**	**7.2**
Potassium, Dissolved	mg/L	<0.50	**0.57**
Magnesium, Dissolved	mg/L	**1.5**	**1.5**
Sodium, Dissolved	mg/L	<0.50	**0.63**
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	**25**	**24**
Residue, Dissolved @ 180°C	mg/L	**64**	<50
Residue, Suspended	mg/L	<5	<5
Alkalinity, Total	mg/L	**30**	**25**
Chemical Oxygen Demand	mg/L	**14**	**14**
Carbon, Dissolved Organic	mg/L	**7.6**	**7.3**
Carbon, Total Organic	mg/L	**6.1**	**6.4**
BOD, (5-Day)	mg/L	**1.2**	**1.6**
Coliform, Total	col/100mL	**140**	**220**
E. coli	neg/pos	neg	neg
Color (Apparent)	A.C.U.	**70**	**70**
SGT-HEM; Nonpolar Material (Total Petroleum Hydrocarbons)	mg/L	<10	<10
Turbidity	NTU	<1.0	<1.0
Gross-Alpha	pCi/L	u	u
Gross-Beta	pCi/L	u	u

u Result is less than the sample detection limit.

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Winter Baseflow 2003
Eagle Project

Parameter	Units	YDR002	YDR002 Duplicate
Organics (BTEX)			
Benzene	µg/L	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0
Xylene (Total)	µg/L	<3.0	<3.0
Metals/Inorganics			
Aluminum, Total	µg/L	<200	<200
Iron, Total	µg/L	**550**	**550**
Lithium, Total	µg/L	<20	<20
Antimony, Total	µg/L	<2.0	<2.0
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Beryllium, Total	µg/L	<1.0	<1.0
Boron, Total	µg/L	<50	<50
Cadmium, Total	µg/L	<0.2	<0.2
Chromium, Total	µg/L	<1.0	<1.0
Cobalt, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Lead, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	**22**	**22**
Molybdenum, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Selenium, Total	µg/L	<2.0	<2.0
Silver, Total	µg/L	<0.2	<0.2
Zinc, Total	µg/L	<10	<10
Mercury, Total	ng/L	**1.690**	**1.710**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**30**	**32**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	**133**	**25**
Fluoride	mg/L	<0.10	<0.10
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	**0.11**	**0.12**
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	**5.1**	<5.0
Sulfide	mg/L	<1.0	<1.0
Major Cations			
Calcium, Dissolved	mg/L	**9.6**	**9.6**
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	**2.0**	**2.0**
Sodium, Dissolved	mg/L	<0.50	**1.1**
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	**32**	**32**
Residue, Dissolved @ 180°C	mg/L	**94**	**126**
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	**30**	**32**
Chemical Oxygen Demand	mg/L	**14**	**15**
Carbon, Total Organic	mg/L	**6.1**	**6.2**
BOD, (5-Day)	mg/L	**1.8**	**1.1**
Coliform, Total	col/100mL	**170**	**220**
E. coli	neg/pos	neg	neg
Color (Apparent)	A.C.U.	**40**	**40**
SGT-HEM; Nonpolar Material (Total Petroleum Hydrocarbons)	mg/L	<10	<10
Turbidity	NTU	**1.8**	**1.8**
Gross-Alpha	pCi/L	u	u
Gross-Beta	pCi/L	u	u

u Result is less than the sample detection limit.

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Spring Snowmelt Runoff 2003
Eagle Project

Parameter	Units	CR002	CR002 Duplicate
Metals/Inorganics			
Iron, Total	µg/L	<20	<20
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**0.394**	**0.438**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**43**	**40**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	**15**	**16**
Potassium, Dissolved	mg/L	**0.51**	**0.54**
Magnesium, Dissolved	mg/L	**2.1**	**2.1**
Sodium, Dissolved	mg/L	**0.50**	**0.50**
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	**46**	**49**
Residue, Dissolved @ 180°C	mg/L	**66**	**66**
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	**43**	**40**
Chemical Oxygen Demand	mg/L	<5.0	<5.0
Carbon, Total Organic	mg/L	<1.0	<1.0
BOD, (5-Day)	mg/L	<1.0	<1.0
Color (Apparent)	A.C.U.	**10**	**5**
Turbidity	NTU	<1.0	<1.0

Appendix H
Quality Control Report
Surface Water Field Blank
Spring Snowmelt Runoff 2003
Eagle Project

Parameter	Units	Field Blank
Metals/Inorganics		
Mercury, Total	ng/L	**0.200 U**

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Field Blank
Spring Rain Runoff 2003
Eagle Project

Parameter	Units	Field Blank
Metals/Inorganics		
Iron, Total	µg/L	<20
Arsenic, Total	µg/L	<1.0
Barium, Total	µg/L	<10
Copper, Total	µg/L	<1.0
Manganese, Total	µg/L	<10
Nickel, Total	µg/L	<1.0
Mercury, Total	ng/L	**0.110 B**
Major Anions		
Alkalinity, Bicarbonate	mg/L	<2.0
Alkalinity, Carbonate	mg/L	<2.0
Chloride	mg/L	<1.0
Nitrogen, Ammonia	mg/L	<0.05
Nitrogen, Nitrate	mg/L	<0.05
Nitrogen, Nitrite	mg/L	<0.05
Sulfate	mg/L	<5.0
Major Cations		
Calcium, Dissolved	mg/L	<0.50
Potassium, Dissolved	mg/L	<0.50
Magnesium, Dissolved	mg/L	<0.50
Sodium, Dissolved	mg/L	<0.50
General Chemistry		
Hardness, (Calculated) as CaCO3	mg/L	<3.0
Residue,Dissolved @ 180*C	mg/L	<25
Residue, Suspended	mg/L	<3
Alkalinity, Total	mg/L	<2.0
Chemical Oxygen Demand	mg/L	<5.0
Carbon, Total Organic	mg/L	<1.0
BOD, (5-Day)	mg/L	<1.0
Color (Apparent)	A.C.U.	<5
Turbidity	NTU	<1.0

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Summer Baseflow 2003
Eagle Project

Parameter	Units	CR002	CR002 Duplicate
Metals/Inorganics			
Iron, Total	µg/L	**29**	**25**
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**0.123 B**	**0.213 B**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**48**	**47**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	**15**	**14**
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	**2.0**	**2.0**
Sodium, Dissolved	mg/L	**0.55**	<0.50
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	**46**	**43**
Residue, Dissolved @ 180°C	mg/L	**56**	**62**
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	**48**	**47**
Chemical Oxygen Demand	mg/L	<5.0	<5.0
Carbon, Total Organic	mg/L	<1.0	<1.0
BOD, (5-Day)	mg/L	<1.0	<1.0
Color (Apparent)	A.C.U.	**5**	**5**
Turbidity	NTU	<1.0	<1.0

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Fall Rain Runoff 2003
Eagle Project

Parameter	Units	STR002	STR002 Duplicate
Metals/Inorganics			
Iron, Total	µg/L	**210**	**210**
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	**1.2**	**1.3**
Manganese, Total	µg/L	<10	**13**
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**1.230**	**1.110**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**29**	**29**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	**1.0**	**1.2**
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	**7.9**	**8.0**
Potassium, Dissolved	mg/L	**0.69**	**0.66**
Magnesium, Dissolved	mg/L	**1.7**	**1.8**
Sodium, Dissolved	mg/L	**1.1**	**0.92**
General Chemistry			
Hardness, (calculated) as CaCO3	mg/L	**27**	**27**
Residue, Dissolved @ 180°C	mg/L	**50**	**62**
Residue, Suspended	mg/L	<5	<5
Alkalinity, Total	mg/L	**29**	**29**
Chemical Oxygen Demand	mg/L	**16**	**16**
Carbon, Total Organic	mg/L	**5.9**	**6.0**
BOD, (5-Day)	mg/L	**1.2**	<1.0
Color (Apparent)	A.C.U.	**60**	**60**
Turbidity	NTU	<1.0	<1.0

Appendix H
Quality Control Report
Surface Water Field Blank
Fall Rain Runoff 2003
Eagle Project

Parameter	Units	Field Blank
Metals/Inorganics		
Iron, Total	µg/L	<20
Arsenic, Total	µg/L	<1.0
Barium, Total	µg/L	<10
Copper, Total	µg/L	<1.0
Manganese, Total	µg/L	<10
Nickel, Total	µg/L	<1.0
Mercury	ng/L	**0.100 U**
Major Anions		
Alkalinity, Bicarbonate	mg/L	<2.0
Alkalinity, Carbonate	mg/L	<2.0
Chloride	mg/L	<1.0
Nitrogen, Ammonia	mg/L	<0.05
Nitrogen, Nitrate	mg/L	<0.05
Nitrogen, Nitrite	mg/L	<0.05
Sulfate	mg/L	<5.0
Major Cations (filtered)		
Calcium, Dissolved	mg/L	<0.50
Potassium, Dissolved	mg/L	<0.50
Magnesium, Dissolved	mg/L	<0.50
Sodium, Dissolved	mg/L	<0.50
General Chemistry		
Hardness, (calculated) as CaCO3	mg/L	<3.0
Residue,Dissolved @ 180*C	mg/L	<20
Residue, Suspended	mg/L	<3
Alkalinity, Total	mg/L	<2.0
Chemical Oxygen Demand	mg/L	<5.0
Carbon, Total Organic	mg/L	<1.0
BOD, (5-Day)	mg/L	<1.0
Color (Apparent)	A.C.U.	<5
Turbidity	NTU	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Winter Baseflow 2004
Eagle Project

Parameter	Units	STRWS001	STRWS001 Duplicate
Metals/Inorganics			
Iron, Total	µg/L	**270**	**410**
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	**12**	**14**
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	**34**	**67**
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**1.990**	**2.190**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**63**	**64**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	**0.10**	**0.09**
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	**17**	**17**
Potassium, Dissolved	mg/L	**0.68**	**0.68**
Magnesium, Dissolved	mg/L	**2.9**	**2.9**
Sodium, Dissolved	mg/L	**1.3**	**1.3**
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	**68**	**62**
Residue, Suspended	mg/L	**6**	**4**
Alkalinity, Total	mg/L	**63**	**64**
Chemical Oxygen Demand	mg/L	**10**	**9.5**
Carbon, Total Organic	mg/L	**3.5**	**3.5**
BOD, (5-Day)	mg/L	**1.3**	<1.0
Color (Apparent)	A.C.U.	**25**	**30**
Turbidity	NTU	**1.9**	**2.8**

Appendix H
Quality Control Report
Surface Water Equipment Blank
Winter Baseflow 2004
Eagle Project

Parameter	Units	EQBS001
Major Cations		
Calcium, Dissolved	mg/L	<0.50
Potassium, Dissolved	mg/L	<0.50
Magnesium, Dissolved	mg/L	<0.50
Sodium, Dissolved	mg/L	<0.50
General Chemistry		
Hardness, (Calculated) as CaCO3	mg/L	<3.0

Appendix H
Quality Control Report
Surface Water Field Blank
Winter Baseflow 2004
Eagle Project

Parameter	Units	FBKS001
Metals/Inorganics		
Iron, Total	ug/L	<20
Arsenic, Total	µg/L	<1.0
Barium, Total	µg/L	<10
Copper, Total	µg/L	<1.0
Manganese, Total	µg/L	<10
Nickel, Total	µg/L	<1.0
Mercury, Total	ng/L	**0.100 U**
Major Anions		
Alkalinity, Bicarbonate	mg/L	<2.0
Alkalinity, Carbonate	mg/L	<2.0
Chloride	mg/L	<1.0
Nitrogen, Ammonia	mg/L	<0.05
Nitrogen, Nitrate	mg/L	<0.05
Nitrogen, Nitrite	mg/L	<0.05
Sulfate	mg/L	<5.0
General Chemistry		
Residue, Dissolved @ 180°C	mg/L	<20
Residue, Suspended	mg/L	<3
Alkalinity, Total	mg/L	<2.0
Chemical Oxygen Demand	mg/L	<5.0
BOD, (5-Day)	mg/L	<1.0
Color (Apparent)	A.C.U.	<5
Turbidity	NTU	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Winter Baseflow 2004 Representative Sample
Eagle Project

Ion	STRES001	
	mg/L	meq/L
Sodium	1.1	0.05
Potassium	0.51	0.01
Calcium	18	0.90
Magnesium	3.8	0.31
Chloride	0.5	0.01
Alkalinity, Bicarbonate	69	1.13
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.09	0.00
Copper	0.00	0.00
Manganese	0.01	0.00
Nitrate	0.09	0.00

Total Dissolved Solids: **96.6** **mg/L**

Ion Balance (Cations/Anions): **1**

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Spring Snowmelt Runoff 2004
Eagle Project

Parameter	Units	STRWS001	STRWS001 Duplicate
Metals/Inorganics			
Iron, Total	µg/L	**270**	**270**
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	**13**	**13**
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**5.030**	**4.900**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**28**	**28**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	**0.06**	**0.07**
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	**8.3**	**8.3**
Potassium, Dissolved	mg/L	**0.66**	**0.61**
Magnesium, Dissolved	mg/L	**1.6**	**1.6**
Sodium, Dissolved	mg/L	**0.66**	**0.61**
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	**56**	**41**
Residue, Suspended	mg/L	**5**	**4**
Alkalinity, Total	mg/L	**28**	**28**
Chemical Oxygen Demand	mg/L	**25**	**24**
Carbon, Total Organic	mg/L	**8.7**	**8.7**
BOD, (5-Day)	mg/L	**1.0**	<1.0
Color (Apparent)	A.C.U.	**50**	**50**
Turbidity	NTU	**3.1**	**2.1**

Appendix H
Quality Control Report
Surface Water Equipment Blank
Spring Snowmelt Runoff 2004
Eagle Project

Parameter	Units	EQBS001
Major Cations		
Calcium, Dissolved	mg/L	<0.50
Potassium, Dissolved	mg/L	<0.50
Magnesium, Dissolved	mg/L	<0.50
Sodium, Dissolved	mg/L	<0.50
General Chemistry		
Hardness, (Calculated) as CaCO3	mg/L	<3.0

Appendix H
Quality Control Report
Surface Water Field Blank
Spring Snowmelt Runoff 2004
Eagle Project

Parameter	Units	FBKS001
Metals/Inorganics		
Iron, Total	ug/L	<20
Arsenic, Total	µg/L	<1.0
Barium, Total	µg/L	<10
Copper, Total	µg/L	<1.0
Manganese, Total	µg/L	<10
Nickel, Total	µg/L	<1.0
Mercury, Total	ng/L	**0.102 B**
Major Anions		
Alkalinity, Bicarbonate	mg/L	<2.0
Alkalinity, Carbonate	mg/L	<2.0
Chloride	mg/L	<1.0
Nitrogen, Ammonia	mg/L	<0.05
Nitrogen, Nitrate	mg/L	<0.05
Nitrogen, Nitrite	mg/L	<0.05
Sulfate	mg/L	<5.0
General Chemistry		
Residue, Dissolved @ 180°C	mg/L	<20
Residue, Suspended	mg/L	<3
Alkalinity, Total	mg/L	<2.0
Chemical Oxygen Demand	mg/L	<5.0
Carbon, Total Organic	mg/L	<1.0
BOD, (5-Day)	mg/L	**1.1**
Color (Apparent)	A.C.U.	<5
Turbidity	NTU	<1.0

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

Appendix H
Quality Control Report
Surface Water Charge Balance
Spring Snowmelt Runoff 2004 Representative Sample
Eagle Project

Ion	STRMS003	
	mg/L	meq/L
Sodium	0.84	0.04
Potassium	0.71	0.02
Calcium	9.6	0.48
Magnesium	2.1	0.17
Chloride	0.50	0.01
Alkalinity, Bicarbonate	31	0.51
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.22	0.01
Copper	0.00	0.00
Manganese	0.02	0.00
Nitrate	0.11	0.00

Total Dissolved Solids: **48.6** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Appendix H
Quality Control Report
Groundwater Masked Duplicates
Spring Snowmelt Runoff 2004
Eagle Project

Parameter	Units	QALM002A	QALM002A Duplicate	QALM003B	QALM003B Duplicate	QALM006A	QALM006A Duplilcate	QALM006B	QALM006B Duplicate
Metals/Inorganics									
Aluminum, Dissolved	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Boron, Dissolved	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Iron, Dissolved	µg/L	<20	<20	<20	<20	<20	<20	**16,500**	**16,300**
Lithium, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Manganese, Dissolved	µg/L	<20	<20	<20	<20	<20	<20	**150**	**150**
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	**5.2**	**5.2**	<2.0	<2.0	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.6**	**0.4**
Zinc, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Mercury, Dissolved	ng/L	**0.229 B**	**0.307**	**0.390**	**0.305**	**0.628**	**0.622**	**0.443**	**0.434**
Major Anions									
Alkalinity, Bicarbonate	mg/L	**33**	**30**	**77**	**77**	**3.1**	**3.2**	**87**	**86**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	**1.8**	**1.6**	**3.7**	<1.0	**1.8**	**1.9**
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	**0.18**	**0.18**	<0.05	**3.1**	**0.20**	**0.21**	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0	**5.9**	**5.6**	<5.0	<5.0	<5.0	<5.0
Major Cations									
Calcium, Dissolved	mg/L	**8.9**	**8.9**	**20**	**20**	**1.2**	**1.2**	**20**	**20**
Potassium, Dissolved	mg/L	**0.56**	**0.60**	**2.4**	**2.5**	<0.50	<0.50	**0.79**	**0.82**
Magnesium, Dissolved	mg/L	**0.96**	**0.96**	**5.9**	**5.8**	<0.50	<0.50	**5.4**	**5.3**
Sodium, Dissolved	mg/L	<0.50	<0.50	**2.2**	**2.3**	**0.51**	**0.58**	**4.3**	**4.2**
General Chemistry									
Residue, Dissolved @ 180°C	mg/L	**56**	**86**	**108**	**86**	**52**	**70**	**158**	**168**

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

Appendix H
Quality Control Report
Groundwater Equipment Blanks
Spring Snowmelt Runoff 2004
Eagle Project

Parameter	Units	EQBM001	EQBM002
Metals/Inorganics			
Aluminum, Dissolved	µg/L	<100	<100
Boron, Dissolved	µg/L	<100	<100
Cobalt, Dissolved	µg/L	<10	<10
Iron, Dissolved	µg/L	<20	<20
Lithium, Dissolved	µg/L	<10	<10
Manganese, Dissolved	µg/L	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10
Nickel, Dissolved	µg/L	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10
Mercury, Dissolved	ng/L	**0.134 B**	**0.227 B**
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

Appendix H
Quality Control Report
Groundwater Field Blanks
Spring Snowmelt Runoff 2004
Eagle Project

Parameter	Units	FBKM001	FBKM002
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<50	<50

Appendix H
Quality Control Report
Groundwater Charge Balance
Spring Snowmelt Runoff 2004 Representative Samples
Eagle Project

Ion	QALM005A	
	mg/L	meq/L
Sodium	0.89	0.04
Potassium	0.73	0.02
Calcium	1.7	0.08
Magnesium	0.25	0.02
Chloride	1.0	0.03
Alkalinity, Bicarbonate	6.5	0.11
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.24	0.01
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.14	0.01
Nitrate	0.03	0.00

Total Dissolved Solids: **15.0** **mg/L**

Ion Balance (Cations/Anions): **1.4**

Ion	QALM005D	
	mg/L	meq/L
Sodium	1.5	0.07
Potassium	1.0	0.03
Calcium	28	1.4
Magnesium	3.3	0.27
Chloride	1.1	0.03
Alkalinity, Bicarbonate	96	1.57
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.54	0.02
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.18	0.01
Nitrate	0.03	0.00

Total Dissolved Solids: **135.2** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Appendix H
Quality Control Report
Surface Water Masked Duplicates
Spring Rain Runoff 2004
Eagle Project

Parameter	Units	CDRMS004	CDRMS004 Duplicate	STRWS001	STRWS001 Duplicate
Metals/Inorganics					
Iron, Total	µg/L	**110**	**120**	**440**	**530**
Arsenic, Total	µg/L	**1.6**	**1.8**	**2.8**	**1.5**
Barium, Total	µg/L	**12**	**13**	**17**	**11**
Copper, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Manganese, Total	µg/L	**13**	**16**	**64**	**35**
Nickel, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Mercury, Total	ng/L	**1.040**	**0.933**	**2.180**	**3.590**
Major Anions					
Alkalinity, Bicarbonate	mg/L	**77**	**72**	**62**	**42**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	**1.1**	<1.0	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05	<0.05	**0.12**
Nitrogen, Nitrite	mg/L	<0.05	<0.05	<0.05	<0.05
Nitrogen, Total Kjeldahl	mg/L	<0.50	<0.50	<0.50	<0.50
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0
Major Cations					
Calcium, Dissolved	mg/L	**22**	**24**	**20**	**14**
Potassium, Dissolved	mg/L	<0.50	<0.50	**0.53**	**0.55**
Magnesium, Dissolved	mg/L	**3.6**	**3.7**	**3.3**	**2.4**
Sodium, Dissolved	mg/L	**0.73**	**0.96**	**0.88**	**0.69**
General Chemistry					
Hardness, (Calculated) as CaCO3	mg/L	**70**	**75**	**64**	**45**
Residue, Dissolved @ 180°C	mg/L	**112**	**104**	**102**	**80**
Residue, Suspended	mg/L	<3	3	**7**	**17**
Alkalinity, Total	mg/L	**77**	**72**	**62**	**42**
Chemical Oxygen Demand	mg/L	**10**	**7.5**	**13**	**20**
Carbon, Total Organic	mg/L	**2.8**	**2.8**	**4.8**	**3.8**
BOD, (5-Day)	mg/L	<1.0	<1.0	<1.0	<1.0
Color (Apparent)	A.C.U.	**20**	**20**	**35**	**50**
Turbidity	NTU	**1.0**	**<1.0**	**3.1**	**6.5**

Appendix H
Quality Control Report
Surface Water Equipment Blanks
Spring Rain Runoff 2004
Eagle Project

Parameter	Units	EQBS001	EQBS002
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	<3.0	<3.0

Appendix H
Quality Control Report
Surface Water Field Blanks
Spring Rain Runoff 2004
Eagle Project

Parameter	Units	FBKS001	FBKS002
Metals/Inorganics			
Iron, Total	µg/L	<20	<20
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**0.100 U**	**0.100 U**
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Nitrogen, Total Kjeldahl	mg/L	<0.50	<0.50
Sulfate	mg/L	**7.8**	<5.0
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<20	<20
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	<2.0	<2.0
Chemical Oxygen Demand	mg/L	<5.0	<5.0
Carbon, Total Organic	mg/L	<1.0	<1.0
BOD, (5-Day)	mg/L	<1.0	<1.0
Color (Apparent)	A.C.U.	<5	<5
Turbidity	NTU	<1.0	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Spring Rain Runoff 2004 Representative Sample
Eagle Project

Ion	STRMS002	
	mg/L	meq/L
Sodium	1.1	0.03
Potassium	0.51	0.01
Calcium	18	0.43
Magnesium	3.8	0.15
Chloride	0.5	0.01
Alkalinity, Bicarbonate	69	0.39
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.44	0.02
Copper	0.01	0.00
Manganese	0.03	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **96.9** **mg/L**

Ion Balance (Cations/Anions): **1.3**

Appendix H
Quality Control Report
Surface Water Masked Duplicates
Summer Baseflow 2004
Eagle Project

Parameter	Units	STRMS002	STRMS002 Duplicate	STRMS003	STRMS003 Duplicate	YDRMS002	YDRMS002 Duplicate
Metals/Inorganics							
Iron, Total	µg/L	**580**	**580**	**280**	**280**	**1,060**	**1,060**
Arsenic, Total	µg/L	<1.0	<1.0	**1.3**	**1.4**	**1.3**	**1.0**
Barium, Total	µg/L	**12**	**11**	<10	<10	<10	<10
Copper, Total	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese, Total	µg/L	**23**	**23**	**11**	**12**	**31**	**31**
Nickel, Total	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury, Total	ng/L	**2.210**	**2.170**	**1.410**	**1.440**	**2.850**	**3.290**
Major Anions							
Alkalinity, Bicarbonate	mg/L	**38**	**28**	**44**	**44**	**24**	**39**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	**1.1**	**1.0**	<1.0	<1.0	**1.1**	**1.0**
Nitrogen, Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05	**0.12**	**0.12**	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Major Cations							
Calcium, Dissolved	mg/L	**10**	**11**	**15**	**15**	**10**	**10**
Potassium, Dissolved	mg/L	<0.50	<0.50	**0.54**	**0.55**	<0.50	<0.50
Magnesium, Dissolved	mg/L	**2.0**	**2.1**	**2.6**	**2.7**	**2.0**	**2.1**
Sodium, Dissolved	mg/L	<0.50	**0.83**	**0.97**	**1.1**	<0.50	**0.98**
General Chemistry							
Hardness, (Calculated) as CaCO3	mg/L	**33**	**36**	**48**	**49**	**33**	**34**
Residue, Dissolved @ 180°C	mg/L	**67**	**70**	**75**	**71**	**75**	**65**
Residue, Suspended	mg/L	<3	<3	<3	**3**	<3	<3
Alkalinity, Total	mg/L	**38**	**28**	**44**	**44**	**24**	**39**
Chemical Oxygen Demand	mg/L	**22**	**22**	**10**	**9.9**	**23**	**23**
Carbon, Total Organic	mg/L	**7.7**	**7.8**	**3.7**	**3.6**	**8.5**	**8.5**
BOD, (5-Day)	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	**1.1**
Color (Apparent)	A.C.U.	**90**	**90**	**40**	**40**	**80**	**90**
Turbidity	NTU	**2.1**	**2.0**	**1.8**	**1.7**	**3.3**	**3.3**

Appendix H
Quality Control Report
Surface Water Equipment Blanks
Summer Baseflow 2004
Eagle Project

Parameter	Units	EQBS001	EQBS002
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	<3.0	<3.0

Appendix H
Quality Control Report
Surface Water Field Blanks
Summer Baseflow 2004
Eagle Project

Parameter	Units	FBKS001	FBKS002
Metals/Inorganics			
Iron, Total	µg/L	<20	<20
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**0.100 U**	**0.100 U**
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<20	<20
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	<2.0	<2.0
Chemical Oxygen Demand	mg/L	<5.0	<5.0
Carbon, Total Organic	mg/L	<1.0	<1.0
BOD, (5-Day)	mg/L	<1.0	<1.0
Color (Apparent)	A.C.U.	<5	<5
Turbidity	NTU	<1.0	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Summer Baseflow 2004 Representative Sample
Eagle Project

Ion	STRES001	
	mg/L	meq/L
Sodium	0.90	0.04
Potassium	0.25	0.01
Calcium	21	1.05
Magnesium	4.3	0.35
Chloride	0.5	0.01
Alkalinity, Bicarbonate	70	1.15
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.10	0.00
Copper	0.00	0.00
Manganese	0.01	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **100.6** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Appendix H
Quality Control Report
Groundwater Masked Duplicates
Summer Baseflow 2004
Eagle Project

Parameter	Units	QALM004A	QALM004A Duplicate	QALM005D	QALM005D Duplicate	QALP016	QALP016 Duplicate	WLDP021	WLDP021 Duplicate
Metals/Inorganics									
Aluminum, Dissolved	µg/L	<100	<100	<100	<100	<100	<100	**410**	**430**
Boron, Dissolved	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Iron, Dissolved	µg/L	<20	<20	**710**	**680**	<20	<20	**1,490**	**1,500**
Lithium, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Manganese, Dissolved	µg/L	<20	<20	**200**	**180**	<20	<20	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	**3.1**	**2.9**	<2.0	<2.0	**4.2**	**4.4**
Barium, Dissolved	µg/L	<20	<20	**28**	**26**	<20	<20	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10	**18**	<10	<10	<10	**94**	**92**
Mercury, Dissolved	ng/L	**0.100 U**	**0.388**	**0.100 U**	**0.100 U**	**0.108 B**	**0.148 B**	**1.000**	**1.480**
Major Anions									
Alkalinity, Bicarbonate	mg/L	**44**	**42**	**96**	**96**	**64**	**63**	**19**	**20**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	**1.4**	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	**0.21**	**0.21**	<0.05	<0.05	**0.10**	**0.10**	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Major Cations									
Calcium, Dissolved	mg/L	**14**	**13**	**27**	**26**	**20**	**20**	**4.1**	**4.1**
Potassium, Dissolved	mg/L	<0.50	<0.50	**0.53**	**0.51**	<0.50	<0.50	<0.50	<0.50
Magnesium, Dissolved	mg/L	**2.3**	**2.3**	**2.9**	**2.7**	**3.3**	**3.2**	**0.61**	**0.63**
Sodium, Dissolved	mg/L	**0.66**	**0.69**	**1.4**	**1.2**	**0.63**	**0.59**	**0.67**	**0.68**
General Chemistry									
Hardness, (calculated) as CaCO3	mg/L	**44**	**42**	**79**	**76**	**64**	**63**	**13**	**13**
Residue, Dissolved @ 180°C	mg/L	**72**	**74**	**114**	**134**	**60**	**64**	**58**	**58**

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.
U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Groundwater Equipment Blanks
Summer Baseflow 2004
Eagle Project

Parameter	Units	EQBM001	EQBM002
Metals/Inorganics			
Aluminum, Dissolved	µg/L	<100	<100
Boron, Dissolved	µg/L	<100	<100
Cobalt, Dissolved	µg/L	<10	<10
Iron, Dissolved	µg/L	<20	<20
Lithium, Dissolved	µg/L	<10	<10
Manganese, Dissolved	µg/L	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10
Nickel, Dissolved	µg/L	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10
Mercury, Dissolved	ng/L	**1.850**	**0.979**
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50
General Chemistry			
Hardness, (calculated) as CaCO3	mg/L	<3.0	<3.0

Appendix H
Quality Control Report
Groundwater Field Blanks
Summer Baseflow 2004
Eagle Project

Parameter	Units	FBKM001	FBKM002
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<50	<50

Appendix H
Quality Control Report
Groundwater Charge Balance
Summer Baseflow 2004 Representative Samples
Eagle Project

Ion	QALM004A	
	mg/L	meq/L
Sodium	0.66	0.03
Potassium	0.25	0.01
Calcium	14	0.70
Magnesium	2.3	0.19
Chloride	0.5	0.01
Alkalinity, Bicarbonate	44	0.72
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.01	0.00
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.01	0.00
Nitrate	0.21	0.00

Total Dissolved Solids: **65.5** **mg/L**

Ion Balance (Cations/Anions): **1.1**

Ion	QALM004D	
	mg/L	meq/L
Sodium	2.0	0.09
Potassium	0.81	0.02
Calcium	23	1.15
Magnesium	3.0	0.25
Chloride	0.5	0.01
Alkalinity, Bicarbonate	97	1.59
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.10	0.00
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.53	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **130.5** **mg/L**

Ion Balance (Cations/Anions): **0.9**

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	STRMS002	STRMS002 Duplicate
Metals/Inorganics			
Iron, Total	mg/L	**400**	**410**
Arsenic, Total	mg/L	<1.0	<1.0
Barium, Total	mg/L	**12**	**11**
Copper, Total	mg/L	<1.0	<1.0
Manganese, Total	mg/L	**18**	**18**
Nickel, Total	mg/L	<1.0	<1.0
Mercury, Total	ng/L	**1.270**	**1.260**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**34**	**35**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	**1.0**	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	**10**	**10**
Potassium, Dissolved	mg/L	<0.50	**0.54**
Magnesium, Dissolved	mg/L	**2.2**	**2.1**
Sodium, Dissolved	mg/L	**1.0**	**0.90**
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	**34**	**34**
Residue, Dissolved @ 180°C	mg/L	**58**	**60**
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	**34**	**35**
Chemical Oxygen Demand	mg/L	**15**	**16**
Carbon, Total Organic	mg/L	**5.6**	**5.5**
BOD, (5-Day)	mg/L	<1.0	<1.0
Color (Apparent)	A.C.U.	**50**	**50**
Turbidity	NTU	**2.0**	**1.7**

Appendix H
Quality Control Report
Surface Water Equipment Blank
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	EQBS001
Major Cations		
Calcium, Dissolved	mg/L	<0.50
Potassium, Dissolved	mg/L	<0.50
Magnesium, Dissolved	mg/L	<0.50
Sodium, Dissolved	mg/L	<0.50
General Chemistry		
Hardness, (Calculated) as CaCO3	mg/L	<3.0

Appendix H
Quality Control Report
Surface Water Field Blank
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	FBKS001
Metals/Inorganics		
Iron, Total	ug/L	<20
Arsenic, Total	µg/L	<1.0
Barium, Total	µg/L	<10
Copper, Total	µg/L	<1.0
Manganese, Total	µg/L	<10
Nickel, Total	µg/L	<1.0
Mercury, Total	ng/L	**0.100 U**
Major Anions		
Alkalinity, Bicarbonate	mg/L	<2.0
Alkalinity, Carbonate	mg/L	<2.0
Chloride	mg/L	<1.0
Nitrogen, Ammonia	mg/L	<0.05
Nitrogen, Nitrate	mg/L	<0.05
Nitrogen, Nitrite	mg/L	<0.05
Sulfate	mg/L	<5.0
General Chemistry		
Residue, Dissolved @ 180°C	mg/L	<20
Residue, Suspended	mg/L	<3
Alkalinity, Total	mg/L	<2.0
Chemical Oxygen Demand	mg/L	<5.0
Carbon, Total Organic	mg/L	<1.0
BOD, (5-Day)	mg/L	<1.0
Color (Apparent)	A.C.U.	<5
Turbidity	NTU	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Fall Rain Runoff 2004 Partial Network Representative Sample
Eagle Project

Ion	YDRMS002	
	mg/L	meq/L
Sodium	0.91	0.04
Potassium	0.52	0.01
Calcium	13	0.65
Magnesium	2.9	0.24
Chloride	1.3	0.04
Alkalinity, Bicarbonate	38	0.62
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	1.2	0.04
Copper	0.01	0.00
Manganese	0.02	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **61.4** **mg/L**

Ion Balance (Cations/Anions): **1.3**

Appendix H
Quality Control Report
Groundwater Masked Duplicates
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	QALM004A	QALM004A Duplicate	QALM004D	QALM004D Duplicate
Metals/Inorganics					
Aluminum, Dissolved	µg/L	<100	<100	<100	<100
Boron, Dissolved	µg/L	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10
Iron, Dissolved	µg/L	<20	<20	**110**	**120**
Lithium, Dissolved	µg/L	<10	<10	<10	<10
Manganese, Dissolved	µg/L	<20	<20	**55**	**57**
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	**8.7**	**8.7**
Barium, Dissolved	µg/L	<20	<20	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	**24**	<10	<10
Mercury, Dissolved	ng/L	**0.209 B**	**0.152 B**	**0.293**	**0.157 B**
Major Anions					
Alkalinity, Bicarbonate	mg/L	**53**	**49**	**79**	**81**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	**1.1**	<1.0
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	**0.16**	**0.16**	<0.05	<0.05
Sulfate	mg/L	**9.3**	<5.0	<5.0	<5.0
Major Cations					
Calcium, Dissolved	mg/L	**14**	**13**	**24**	**24**
Potassium, Dissolved	mg/L	**0.62**	**0.62**	**1.0**	**1.2**
Magnesium, Dissolved	mg/L	**2.4**	**2.2**	**3.1**	**3.2**
Sodium, Dissolved	mg/L	**0.97**	**0.71**	**2.1**	**2.2**
General Chemistry					
Hardness, (Calculated) as CaCO3	mg/L	**45**	**42**	**73**	**73**
Residue, Dissolved @ 180°C	mg/L	**72**	**74**	**118**	**120**

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

Appendix H
Quality Control Report
Groundwater Equipment Blanks
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	EQBM001	EQBM002
Metals/Inorganics			
Aluminum, Dissolved	µg/L	<100	<100
Boron, Dissolved	µg/L	<100	<100
Cobalt, Dissolved	µg/L	<10	<10
Iron, Dissolved	µg/L	<20	<20
Lithium, Dissolved	µg/L	<10	<10
Manganese, Dissolved	µg/L	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10
Nickel, Dissolved	µg/L	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10
Mercury, Dissolved	ng/L	**0.480**	**0.317**
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50

Appendix H
Quality Control Report
Groundwater Field Blanks
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	FBKM001	FBKM002
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<50	<50

Appendix H
Quality Control Report
Groundwater Charge Balance
Fall Rain Runoff 2004 Partial Network Representative Sample
Eagle Project

Ion	QALM005A	
	mg/L	meq/L
Sodium	0.89	0.04
Potassium	0.71	0.02
Calcium	1.1	0.05
Magnesium	0.25	0.02
Chloride	0.50	0.01
Alkalinity, Bicarbonate	6.1	0.10
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.38	0.01
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.01	0.00
Nitrogen Nitrate	0.03	0.00

Total Dissolved Solids: **13.5** **mg/L**

Ion Balance (Cations/Anions): **0.8**

Appendix H
Quality Control Report
Surface Water Masked Duplicates
Fall Rain Runoff 2004 Full Network
Eagle Project

Parameter	Units	CDRAS002	CDRAS002 Duplicate	STRES002	STRES002 Duplicate
Metals/Inorganics					
Iron, Total	µg/L	<20	<20	**79**	**110**
Arsenic, Total	µg/L	<1.0	<1.0	**1.1**	**1.0**
Barium, Total	µg/L	<10	<10	**11**	**12**
Copper, Total	µg/L	<1.0	<1.0	<1.0	**1.0**
Manganese, Total	µg/L	<10	<10	<10	<10
Nickel, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Mercury, Total	ng/L	**0.273**	**0.286**	**0.779**	**0.781**
Major Anions					
Alkalinity, Bicarbonate	mg/L	**43**	**40**	**58**	**60**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05
Nitrogen, Nitrate	mg/L	**0.06**	**0.06**	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0	<5.0	**11**
Major Cations					
Calcium, Dissolved	mg/L	**15**	**15**	**20**	**19**
Potassium, Dissolved	mg/L	**0.56**	**0.53**	**0.58**	**0.63**
Magnesium, Dissolved	mg/L	**2.2**	**2.1**	**4.1**	**4.1**
Sodium, Dissolved	mg/L	**0.61**	**0.86**	**1.4**	**1.5**
General Chemistry					
Hardness, (Calculated) as CaCO3	mg/L	**47**	**46**	**67**	**64**
Residue, Dissolved @ 180°C	mg/L	**58**	**60**	**84**	**81**
Residue, Suspended	mg/L	<3	<3	<3	<3
Alkalinity, Total	mg/L	**43**	**40**	**58**	**60**
Chemical Oxygen Demand	mg/L	<5.0	<5.0	**9.3**	**8.5**
Carbon, Total Organic	mg/L	<1.0	<1.0	**2.2**	**2.2**
BOD, (5-Day)	mg/L	<1.0	<1.0	<1.0	<1.0
Color (Apparent)	A.C.U.	<5	<5	**15**	**15**
Turbidity	NTU	<1.0	<1.0	**1.3**	**1.2**

Appendix H
Quality Control Report
Surface Water Equipment Blanks
Fall Rain Runoff 2004 Full Network
Eagle Project

Parameter	Units	EQBS001	EQBS002
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	<3.0	<3.0

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Quality Control Report
Surface Water Field Blanks
Fall Rain Runoff 2004 Full Network
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Parameter	Units	FBKS001	FBKS002
Metals/Inorganics			
Iron, Total	µg/L	<20	<20
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**0.100 U**	**0.100 U**
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<20	<20
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	<2.0	<2.0
Chemical Oxygen Demand	mg/L	<5.0	<5.0
Carbon, Total Organic	mg/L	<1.0	<1.0
BOD, (5-Day)	mg/L	<1.0	<1.0
Color (Apparent)	A.C.U.	<5	<5
Turbidity	NTU	<1.0	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Fall Rain Runoff 2004 Full Network Representative Sample
Eagle Project

Ion	CDRM004	
	mg/L	meq/L
Sodium	1.1	0.05
Potassium	0.53	0.01
Calcium	22	1.10
Magnesium	3.7	0.30
Chloride	0.50	0.01
Alkalinity, Bicarbonate	65	1.07
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.12	0.00
Copper	0.00	0.00
Manganese	0.02	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **96.5** **mg/L**

Ion Balance (Cations/Anions): **1.3**

Appendix H
Quality Control Report
Groundwater Masked Duplicates
Fall Rain Runoff 2004 Full Network
Eagle Project

Parameter	Units	WLDP006	WLDP006 Duplicate	QALM007A	QALM007A Duplicate	QALM010A	QALM010A Duplicate	QALP018	QALP018 Duplicate
Metals/Inorganics									
Aluminum, Dissolved	µg/L	**610**	**580**	<100	<100	<100	<100	<100	<100
Boron, Dissolved	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Iron, Dissolved	µg/L	**20,400**	**19,800**	<20	<20	<20	<20	**180**	**170**
Lithium, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Manganese, Dissolved	µg/L	**29**	**28**	<20	<20	**41**	**38**	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Mercury, Dissolved	ng/L	**3.800**	**3.397**	**0.100 U**	**0.100 U**	**0.291**	**0.223 B**	**1.740**	**0.566**
Major Anions									
Alkalinity, Bicarbonate	mg/L	**27**	**35**	**20**	**22**	**41**	**54**	**72**	**71**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	**2.0**	**2.2**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	**0.07**	**0.08**	**0.32**	**0.33**	**0.15**	**0.15**	**0.20**	**0.20**
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**5.1**	<5.0
Major Cations									
Calcium, Dissolved	mg/L	**0.90**	**0.86**	**7.2**	**7.0**	**12**	**12**	**21**	**21**
Potassium, Dissolved	mg/L	<0.50	<0.50	**0.63**	**0.57**	**1.2**	**1.4**	<0.50	**0.50**
Magnesium, Dissolved	mg/L	<0.50	<0.50	**0.80**	**0.77**	**2.3**	**2.3**	**4.1**	**4.2**
Sodium, Dissolved	mg/L	<0.50	<0.50	<0.50	**0.61**	**1.2**	**1.1**	**0.80**	**0.80**
General Chemistry									
Hardness, (Calculated) as CaCO3	mg/L	**3**	**3**	**21**	**21**	**39**	**39**	**69**	**70**
Residue, Dissolved @ 180°C	mg/L	**110**	**106**	<50	**56**	**64**	**56**	**102**	**120**
Tritium	TU	NM	NM	NM	NM	NM	NM	**10.3**	**10.3**

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.
NM Not measured.
U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Groundwater Equipment Blanks
Fall Rain Runoff 2004 Full Network
Eagle Project

Parameter	Units	EQBM001	EQBM002	EQBM003	EQBM004
Metals/Inorganics					
Aluminum, Dissolved	µg/L	<100	<100	<100	<100
Boron, Dissolved	µg/L	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10
Iron, Dissolved	µg/L	<20	<20	<20	<20
Lithium, Dissolved	µg/L	<10	<10	<10	<10
Manganese, Dissolved	µg/L	<20	<20	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	**0.6**	**0.4**	**0.2**	<0.2
Zinc, Dissolved	µg/L	<10	<10	<10	<10
Mercury, Dissolved	ng/L	**0.604**	**0.343**	**0.925**	**0.539**
Major Cations					
Calcium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50

Appendix H
Quality Control Report
Groundwater Field Blanks
Fall Rain Runoff 2004 Full Network
Eagle Project

Parameter	Units	FBKM001	FBKM002	FBKM003	FBKM004
Major Anions					
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0
General Chemistry					
Residue, Dissolved @ 180°C	mg/L	<50	<50	<50	<50

Appendix H
Quality Control Report
Groundwater Charge Balance
Fall Rain Runoff 2004 Full Network Representative Samples
Eagle Project

Ion	WLDP006	
	mg/L	meq/L
Sodium	0.25	0.01
Potassium	0.25	0.01
Calcium	0.90	0.04
Magnesium	0.25	0.02
Chloride	2.0	0.06
Alkalinity, Bicarbonate	27	0.44
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	20	0.73
Copper	0.03	0.00
Aluminum	0.61	0.07
Manganese	0.03	0.00
Nitrate	0.07	0.00

Total Dissolved Solids: **55.3** **mg/L**

Ion Balance (Cations/Anions): **1.6**

Ion	QALM009A	
	mg/L	meq/L
Sodium	0.79	0.03
Potassium	1.4	0.04
Calcium	15	0.75
Magnesium	2.4	0.20
Chloride	5.3	0.15
Alkalinity, Bicarbonate	54	0.89
Alkalinity, Carbonate	1.0	0.03
Sulfate	12	0.25
Iron	0.00	0.00
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.01	0.00
Nitrate	0.14	0.00

Total Dissolved Solids: **92.1** **mg/L**

Ion Balance (Cations/Anions): **0.8**

Appendix H
Quality Control Report
Groundwater Charge Balance
Fall Rain Runoff 2004 Full Network Representative Samples
Eagle Project

Ion	QALP020	
	mg/L	meq/L
Sodium	0.25	0.01
Potassium	1.3	0.03
Calcium	3.8	0.19
Magnesium	0.83	0.07
Chloride	0.50	0.01
Alkalinity, Bicarbonate	13	0.21
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.03	0.00
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.01	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **23.3** **mg/L**

Ion Balance (Cations/Anions): **1.0**

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	STRMS001	STRMS001 Duplicate
Metals/Inorganics			
Iron, Total	µg/L	**350**	**330**
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	**17**	**17**
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**0.810**	**0.672**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**13**	**14**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	**4.5**	**4.5**
Potassium, Dissolved	mg/L	**0.65**	**0.62**
Magnesium, Dissolved	mg/L	**1.1**	**1.1**
Sodium, Dissolved	mg/L	<0.50	<0.50
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	**16**	**16**
Residue, Dissolved @ 180°C	mg/L	<20	<20
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	**13**	**14**
Chemical Oxygen Demand	mg/L	**15**	**13**
Carbon, Total Organic	mg/L	**5**	**4.9**
BOD, (5-Day)	mg/L	<1.0	<1.0
Color (Apparent)	A.C.U.	**25**	**30**
Turbidity	NTU	<1.0	<1.0

Appendix H
Quality Control Report
Surface Water Equipment Blank
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	EQBS001
Major Cations		
Calcium, Dissolved	mg/L	<0.50
Potassium, Dissolved	mg/L	<0.50
Magnesium, Dissolved	mg/L	<0.50
Sodium, Dissolved	mg/L	<0.50
General Chemistry		
Hardness, (Calculated) as CaCO3	mg/L	<3.0

Appendix H
Quality Control Report
Surface Water Field Blank
Fall Rain Runoff 2004 Partial Network
Eagle Project

Parameter	Units	FBKS001
Metals/Inorganics		
Iron, Total	µg/L	<20
Arsenic, Total	µg/L	<1.0
Barium, Total	µg/L	<10
Copper, Total	µg/L	<1.0
Manganese, Total	µg/L	<10
Nickel, Total	µg/L	<1.0
Mercury, Total	ng/L	**0.100 U**
Major Anions		
Alkalinity, Bicarbonate	mg/L	<2.0
Alkalinity, Carbonate	mg/L	<2.0
Chloride	mg/L	<1.0
Nitrogen, Ammonia	mg/L	<0.05
Nitrogen, Nitrate	mg/L	<0.05
Nitrogen, Nitrite	mg/L	<0.05
Sulfate	mg/L	<5.0
General Chemistry		
Residue, Dissolved @ 180°C	mg/L	<20
Residue, Suspended	mg/L	<3
Alkalinity, Total	mg/L	<2.0
Chemical Oxygen Demand	mg/L	<5.0
Carbon, Total Organic	mg/L	<1.0
BOD, (5-Day)	mg/L	<1.0
Color (Apparent)	A.C.U.	<5
Turbidity	NTU	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Fall Rain Runoff 2004 Partial Network Representative Sample
Eagle Project

Ion	STRMS001	
	mg/L	meq/L
Sodium	0.25	0.01
Potassium	0.65	0.02
Calcium	4.5	0.22
Magnesium	1.1	0.09
Chloride	0.50	0.01
Alkalinity, Bicarbonate	13	0.21
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.35	0.01
Copper	0.00	0.00
Manganese	0.02	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **23.9** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Appendix H
Quality Control Report
Surface Water Masked Duplicate
Winter Baseflow 2004 Partial Network
Eagle Project

Parameter	Units	YDRMS002	YDRMS002 Duplicate
Metals/Inorganics			
Iron, Total	µg/L	**610**	**670**
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	**34**	**36**
Nickel, Total	µg/L	<1.0	<1.0
Mercury, Total	ng/L	**2.610**	**2.560**
Major Anions			
Alkalinity, Bicarbonate	mg/L	**24**	**23**
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Nitrogen, Ammonia	mg/L	<0.05	<0.05
Nitrogen, Nitrate	mg/L	**0.09**	**0.09**
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
Major Cations			
Calcium, Dissolved	mg/L	**7.6**	**7.8**
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	**1.6**	**1.7**
Sodium, Dissolved	mg/L	**0.78**	**0.79**
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	**26**	**26**
Residue, Dissolved @ 180°C	mg/L	**64**	<20
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	**24**	**23**
Chemical Oxygen Demand	mg/L	**20**	**20**
Carbon, Total Organic	mg/L	**8.1**	**8.2**
BOD, (5-Day)	mg/L	<1.0	<1.0
Color (Apparent)	A.C.U.	**70**	**70**
Turbidity	NTU	**1.8**	**1.9**

Appendix H
Quality Control Report
Surface Water Equipment Blank
Winter Baseflow 2004 Partial Network
Eagle Project

Parameter	Units	EQBS001
Major Cations		
Calcium, Dissolved	mg/L	<0.50
Potassium, Dissolved	mg/L	<0.50
Magnesium, Dissolved	mg/L	<0.50
Sodium, Dissolved	mg/L	<0.50
General Chemistry		
Hardness, (Calculated) as CaCO3	mg/L	<3.0

Appendix H
Quality Control Report
Surface Water Field Blank
Winter Baseflow 2004 Partial Network
Eagle Project

Parameter	Units	FBKS001
Metals/Inorganics		
Iron, Total	µg/L	<20
Arsenic, Total	µg/L	<1.0
Barium, Total	µg/L	<10
Copper, Total	µg/L	<1.0
Manganese, Total	µg/L	<10
Nickel, Total	µg/L	<1.0
Mercury, Total	ng/L	**0.100 U**
Major Anions		
Alkalinity, Bicarbonate	mg/L	<2.0
Alkalinity, Carbonate	mg/L	<2.0
Chloride	mg/L	<1.0
Nitrogen, Ammonia	mg/L	<0.05
Nitrogen, Nitrate	mg/L	<0.05
Nitrogen, Nitrite	mg/L	<0.05
Sulfate	mg/L	<5.0
General Chemistry		
Residue, Dissolved @ 180°C	mg/L	<20
Residue, Suspended	mg/L	<3
Alkalinity, Total	mg/L	<2.0
Chemical Oxygen Demand	mg/L	<5.0
Carbon, Total Organic	mg/L	<1.0
BOD, (5-Day)	mg/L	<1.0
Color (Apparent)	A.C.U.	<5
Turbidity	NTU	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Winter Baseflow 2004 Partial Network Representative Sample
Eagle Project

Ion	STRES002	
	mg/L	meq/L
Sodium	1.1	0.05
Potassium	0.55	0.01
Calcium	18	0.90
Magnesium	3.7	0.30
Chloride	0.50	0.01
Alkalinity, Bicarbonate	61	1.00
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.13	0.00
Copper	0.00	0.00
Manganese	0.01	0.00
Nitrate	0.08	0.00

Total Dissolved Solids: **88.6** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Appendix H
Quality Control Report
Groundwater Masked Duplicates
Winter Baseflow 2004 Partial Network
Eagle Project

Parameter	Units	QALM005A	QALM005A Duplicate	QALM005D	QALM005D Duplicate
Metals/Inorganics					
Aluminum, Dissolved	µg/L	<100	<100	<100	<100
Boron, Dissolved	µg/L	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10
Iron, Dissolved	µg/L	**420**	**460**	**740**	**740**
Lithium, Dissolved	µg/L	<10	<10	<10	<10
Manganese, Dissolved	µg/L	<20	<20	**200**	**200**
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	**3.6**	**3.5**
Barium, Dissolved	µg/L	**20**	**21**	**31**	**32**
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10	<10	<10
Mercury, Dissolved	ng/L	**0.253**	**0.231 B**	**0.114 B**	**0.173 B**
Major Anions					
Alkalinity, Bicarbonate	mg/L	<2.0	**4.2**	**89**	**89**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0
Major Cations					
Calcium, Dissolved	mg/L	**1.2**	**1.2**	**28**	**28**
Potassium, Dissolved	mg/L	**0.81**	**0.78**	**0.61**	**0.71**
Magnesium, Dissolved	mg/L	<0.50	<0.50	**2.9**	**2.9**
Sodium, Dissolved	mg/L	**0.66**	**0.68**	**1.4**	**1.4**
General Chemistry					
Hardness, (Calculated) as CaCO3	mg/L	**4**	**4**	**82**	**82**
Residue, Dissolved @ 180°C	mg/L	**52**	**66**	**96**	**142**

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

Appendix H
Quality Control Report
Groundwater Equipment Blanks
Winter Baseflow 2004 Partial Network
Eagle Project

Parameter	Units	EQBM001	EQBM002
Metals/Inorganics			
Aluminum, Dissolved	µg/L	<100	<100
Boron, Dissolved	µg/L	<100	<100
Cobalt, Dissolved	µg/L	<10	<10
Iron, Dissolved	µg/L	<20	<20
Lithium, Dissolved	µg/L	<10	<10
Manganese, Dissolved	µg/L	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10
Nickel, Dissolved	µg/L	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10
Mercury, Dissolved	ng/L	**0.382**	**0.360**
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	**0.50**	<0.50

Appendix H
Quality Control Report
Groundwater Field Blanks
Winter Baseflow 2004 Partial Network
Eagle Project

Parameter	Units	FBKM001	FBKM002
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<50	<50

Appendix H
Quality Control Report
Groundwater Charge Balance
Winter Baseflow 2004 Partial Network Representative Sample
Eagle Project

Ion	QALM008A	
	mg/L	meq/L
Sodium	0.70	0.03
Potassium	0.64	0.02
Calcium	8.8	0.44
Magnesium	1.4	0.12
Chloride	0.5	0.01
Alkalinity, Bicarbonate	28	0.46
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.01	0.00
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.01	0.00
Nitrate	0.12	0.00

Total Dissolved Solids: **43.7** **mg/L**

Ion Balance (Cations/Anions): **1.1**

Appendix H
Quality Control Report
Surface Water Masked Duplicates
Winter Baseflow 2005 Full Network
Eagle Project

Parameter	Units	STRWS001	STRWS001 Duplicate	YDRMS002	YDRMS002 Duplicate
Organics (BTEX)					
Benzene	µg/L	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0	<1.0	<1.0
Xylene (Total)	µg/L	<3.0	<3.0	<3.0	<3.0
Metals/Inorganics					
Aluminum, Total	µg/L	<50	**60**	**68**	**81**
Lithium, Total	µg/L	<10	<10	<10	<10
Antimony, Total	µg/L	<2.0	<2.0	<2.0	<2.0
Arsenic, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Barium, Total	µg/L	**12**	**11**	<10	<10
Iron, Total	µg/L	**220**	**230**	**590**	**620**
Beryllium, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Boron, Total	µg/L	<50	<50	<50	<50
Cadmium, Total	µg/L	<0.2	<0.2	<0.2	<0.2
Chromium, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Cobalt, Total	µg/L	<10	<10	<10	<10
Copper, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Lead, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Manganese, Total	µg/L	**23**	**23**	**31**	**28**
Molybdenum, Total	µg/L	<10	<10	<10	<10
Nickel, Total	µg/L	<1.0	<1.0	**3.2**	<1.0
Selenium, Total	µg/L	<2.0	<2.0	<2.0	<2.0
Silver, Total	µg/L	<0.2	<0.2	<0.2	<0.2
Zinc, Total	µg/L	<10	<10	**71**	<10
Mercury, Total	ng/L	**1.330**	**1.260**	**2.320**	**2.410**
Major Anions					
Alkalinity, Bicarbonate	mg/L	**55**	**55**	**21**	**35**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	**1.5**	**1.1**
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrogen, Ammonia	mg/L	<0.02	<0.02	**0.11**	**0.05**
Nitrogen, Nitrate	mg/L	**0.08**	**0.08**	**0.10**	**0.10**
Nitrogen, Nitrite	mg/L	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/L	<1.0	<1.0	<1.0	<1.0
Sulfide	mg/L	<1.0	<1.0	<1.0	<1.0
Major Cations					
Calcium, Dissolved	mg/L	**16**	**16**	**7.9**	**7.9**
Potassium, Dissolved	mg/L	**0.58**	**0.57**	<0.50	<0.50
Magnesium, Dissolved	mg/L	**2.8**	**2.8**	**1.9**	**1.8**
Sodium, Dissolved	mg/L	**1.0**	**1.1**	**0.83**	**1.0**
General Chemistry					
Hardness, (calculated) as CaCO3	mg/L	**51**	**51**	**28**	**27**
Residue, Dissolved @ 180°C	mg/L	**63**	**61**	<20	**22**
Residue, Suspended	mg/L	<3	<3	<3	<3
Alkalinity, Total	mg/L	**55**	**55**	**21**	**35**
Chemical Oxygen Demand	mg/L	**9.8**	**9.9**	**20**	**20**
Carbon, Dissolved Organic	mg/L	**4.6**	**4.5**	**8.5**	**8.5**
Carbon, Total Organic	mg/L	**4.0**	**4.1**	**7.8**	**8.0**
BOD, (5-Day)	mg/L	<1.0	<1.0	**1.6**	**1.7**
Coliform, Total	col/100mL	**170**	**280**	**30**	**240**
Color (Apparent)	A.C.U.	**25**	**25**	**80**	**90**
SGT-HEM; Nonpolar Material (Total Petroleum Hydrocarbons)	mg/L	<10	<10	<10	<10
Turbidity	NTU	**1.4**	**1.8**	**1.8**	**1.9**
Gross-Alpha	pCi/L	u	u	u	u
Gross-Beta	pCi/L	u	u	u	u

u Result is less than the sample detection limit.

Appendix H
Quality Control Report
Surface Water Equipment Blanks
Winter Baseflow 2005 Full Network
Eagle Project

Parameter	Units	EQBS001	EQBS002
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	<3.0	<3.0

Appendix H
Quality Control Report
Surface Water Field Blanks
Winter Baseflow 2005 Full Network
Eagle Project

Parameter	Units	FBKS001	FBKS002
Organics (BTEX)			
Benzene	µg/L	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0
Xylene (Total)	µg/L	<3.0	<3.0
Metals/Inorganics			
Aluminum, Total	µg/L	<50	<50
Lithium, Total	µg/L	<10	<10
Antimony, Total	µg/L	<2.0	<2.0
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Iron, Total	µg/L	<20	<20
Beryllium, Total	µg/L	<1.0	<1.0
Boron, Total	µg/L	<50	<50
Cadmium, Total	µg/L	<0.2	<0.2
Chromium, Total	µg/L	<1.0	<1.0
Cobalt, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Lead, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	<10	<10
Molybdenum, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Selenium, Total	µg/L	<2.0	<2.0
Silver, Total	µg/L	<0.2	<0.2
Zinc, Total	µg/L	<10	<10
Mercury, Total	ng/L	**0.100 U**	**0.100 U**
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10
Nitrogen, Ammonia	mg/L	<0.02	<0.02
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<1.0	<1.0
Sulfide	mg/L	<1.0	<1.0
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<20	<20
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	<2.0	<2.0
Chemical Oxygen Demand	mg/L	<5.0	<5.0
Carbon, Dissolved Organic	mg/L	<1.0	<1.0
Carbon, Total Organic	mg/L	<1.0	<1.0
BOD, (5-Day)	mg/L	<1.0	<1.0
Coliform, Total	col/100mL	<2	<2
Color (Apparent)	A.C.U.	<5	<5
SGT-HEM; Nonpolar Material (Total Petroleum Hydrocarbons)	mg/L	<10	<10
Turbidity	NTU	<1.0	<1.0

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Winter Baseflow 2005 Full Network Representative Sample
Eagle Project

Ion	STRMS004	
	mg/L	meq/L
Sodium	0.81	0.04
Potassium	0.58	0.01
Calcium	14	0.70
Magnesium	2.6	0.21
Chloride	0.50	0.01
Alkalinity, Bicarbonate	47	0.77
Alkalinity, Carbonate	1.0	0.03
Sulfate	0.50	0.01
Iron	0.16	0.01
Copper	0.00	0.00
Aluminum	0.15	0.02
Manganese	0.02	0.00
Nitrate	0.23	0.00

Total Dissolved Solids: **67.5** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Appendix H
Quality Control Report
Groundwater Masked Duplicates
Winter Baseflow 2005 Full Network
Eagle Project

Parameter	Units	WLDP001	WLDP001 Duplicate	QALM005A	QALM005A Duplicate	QALM005D	QALM005D Duplicate	QALP016	QALP016 Duplicate
Metals/Inorganics									
Aluminum, Dissolved	µg/L	**52**	<50	<50	<50	<50	<50	<50	<50
Boron, Dissolved	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Iron, Dissolved	µg/L	**1,010**	**1,010**	**240**	**230**	**740**	**720**	<20	<20
Lithium, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Manganese, Dissolved	µg/L	**22**	**24**	<20	<20	**210**	**200**	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	<2.0	<2.0	**3.8**	**3.9**	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20	**23**	**20**	**32**	**33**	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	**39**	<10	<10	<10	<10	<10	**11**
Mercury, Dissolved	ng/L	**0.452**	**0.490**	**0.182 B**	**0.198 B**	**0.208 B**	**0.189 B**	**0.100 U**	**0.100 U**
Major Anions									
Alkalinity, Bicarbonate	mg/L	**81**	**79**	**4.5**	**3.6**	**110**	**110**	**61**	**64**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	**1.0**	<1.0	**1.3**	**1.3**	<1.0	<1.0	<1.0
Fluoride	mg/L	**0.12**	**0.10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.09**	**0.09**
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Major Cations									
Calcium, Dissolved	mg/L	**23**	**23**	**1.3**	**1.2**	**28**	**28**	**21**	**21**
Potassium, Dissolved	mg/L	**0.80**	**0.88**	**0.68**	**0.74**	**0.57**	**0.65**	<0.50	<0.50
Magnesium, Dissolved	mg/L	**4.7**	**4.8**	<0.50	<0.50	**2.9**	**2.9**	**3.5**	**3.3**
Sodium, Dissolved	mg/L	**1.1**	**0.94**	**0.58**	**0.65**	**1.5**	**1.2**	**0.79**	**0.72**
General Chemistry									
Hardness, (Calculated) as CaCO3	mg/L	**77**	**77**	**4**	**4**	**82**	**82**	**67**	**66**
Residue, Dissolved @ 180°C	mg/L	<50	**58**	<50	<50	**92**	**97**	**67**	**70**

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.
U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Groundwater Equipment Blanks
Winter Baseflow 2005 Full Network
Eagle Project

Parameter	Units	EQBM001	EQBM002	EQBM003	EQBM004
Metals/Inorganics					
Aluminum, Dissolved	µg/L	<50	<50	<50	<50
Boron, Dissolved	µg/L	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10
Iron, Dissolved	µg/L	<20	<20	<20	<20
Lithium, Dissolved	µg/L	<10	<10	<10	<10
Manganese, Dissolved	µg/L	<20	<20	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10	<10	<10
Mercury, Dissolved	ng/L	**0.167 B**	**0.171 B**	**0.164 B**	**0.236 B**
Major Cations					
Calcium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

Appendix H
Quality Control Report
Groundwater Field Blanks
Winter Baseflow 2005 Full Network
Eagle Project

Parameter	Units	FBKM001	FBKM002	FBKM003	FBKM004
Major Anions					
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0
General Chemistry					
Residue, Dissolved @ 180°C	mg/L	<50	<50	<50	<50

Appendix H
Quality Control Report
Groundwater Charge Balance
Winter Baseflow 2005 Full Network Representative Samples
Eagle Project

Ion	QALM002A	
	mg/L	meq/L
Sodium	0.62	0.03
Potassium	0.70	0.02
Calcium	9.1	0.45
Magnesium	1.2	0.10
Chloride	0.50	0.01
Alkalinity, Bicarbonate	43	0.70
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.01	0.00
Copper	0.00	0.00
Aluminum	0.03	0.00
Manganese	0.01	0.00
Nitrate	0.18	0.00

Total Dissolved Solids: **58.8** **mg/L**

Ion Balance (Cations/Anions): **0.8**

Ion	QALP015	
	mg/L	meq/L
Sodium	0.51	0.02
Potassium	0.25	0.01
Calcium	18	0.9
Magnesium	3.0	0.25
Chloride	0.50	0.01
Alkalinity, Bicarbonate	60	0.98
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.01	0.00
Copper	0.00	0.00
Aluminum	0.03	0.00
Manganese	0.01	0.00
Nitrate	0.08	0.00

Total Dissolved Solids: **85.9** **mg/L**

Ion Balance (Cations/Anions): **1.1**

Appendix H
Quality Control Report
Groundwater Charge Balance
Winter Baseflow 2005 Full Network Representative Samples
Eagle Project

Ion	WLDP001	
	mg/L	meq/L
Sodium	1.1	0.05
Potassium	0.80	0.02
Calcium	23	1.15
Magnesium	4.7	0.39
Chloride	0.50	0.01
Alkalinity, Bicarbonate	81	1.33
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	1.01	0.04
Copper	0.00	0.00
Aluminum	0.05	0.01
Manganese	0.02	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **115.7** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Appendix H
Quality Control Report
Surface Water Masked Duplicates
Spring Snowmelt Runoff 2005 Full Network
Eagle Project

Parameter	Units	YDRMS002	YDRMS002 Duplicate	STRMS002	STRMS002 Duplicate
Organics (BTEX)					
Benzene	µg/L	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0	<1.0	<1.0
Xylene (Total)	µg/L	<3.0	<3.0	<3.0	<3.0
Metals/Inorganics					
Aluminum, Total	µg/L	**150**	**150**	<50	**63**
Lithium, Total	µg/L	<10	<10	<10	<10
Antimony, Total	µg/L	<2.0	<2.0	<2.0	<2.0
Arsenic, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Barium, Total	µg/L	<10	<10	<10	<10
Iron, Total	µg/L	**290**	**280**	**290**	**290**
Beryllium, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Boron, Total	µg/L	<50	<50	<50	<50
Cadmium, Total	µg/L	<0.2	<0.2	<0.2	<0.2
Chromium, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Cobalt, Total	µg/L	<10	<10	<10	<10
Copper, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Lead, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Manganese, Total	µg/L	<10	<10	**14**	**14**
Molybdenum, Total	µg/L	<10	<10	<10	<10
Nickel, Total	µg/L	<1.0	<1.0	<1.0	<1.0
Selenium, Total	µg/L	<2.0	<2.0	<2.0	<2.0
Silver, Total	µg/L	<0.2	<0.2	<0.2	<0.2
Zinc, Total	µg/L	<10	<10	<10	<10
Mercury, Total	ng/L	**6.780**	**7.150**	**3.880**	**4.250**
Major Anions					
Alkalinity, Bicarbonate	mg/L	**5.0**	**4.5**	**26**	**24**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	**1.3**	<1.0	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrogen, Ammonia	mg/L	<0.02	<0.02	<0.02	<0.02
Nitrogen, Nitrate	mg/L	**0.08**	**0.08**	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/L	<1.0	<1.0	<1.0	<1.0
Sulfide	mg/L	<1.0	<1.0	<1.0	<1.0
Major Cations					
Calcium, Dissolved	mg/L	**2.7**	**2.6**	**4.7**	**4.8**
Potassium, Dissolved	mg/L	<0.50	<0.50	<0.50	**0.53**
Magnesium, Dissolved	mg/L	**0.64**	**0.61**	**1.1**	**1.1**
Sodium, Dissolved	mg/L	<0.50	<0.50	**0.51**	**0.53**
General Chemistry					
Hardness, (calculated) as CaCO3	mg/L	**9**	**9**	**16**	**17**
Residue, Dissolved @ 180°C	mg/L	**20**	**23**	**38**	**45**
Residue, Suspended	mg/L	<3	<3	**3**	<3
Alkalinity, Total	mg/L	**5.0**	**4.5**	**26**	**24**
Chemical Oxygen Demand	mg/L	**32**	**32**	**25**	**25**
Carbon, Dissolved Organic	mg/L	**12**	**13**	**9.5**	**9.6**
Carbon, Total Organic	mg/L	**12**	**11**	**8.5**	**8.3**
BOD, (5-Day)	mg/L	**1.9**	**1.4**	**1.0**	**1.4**
Coliform, Total	col/100mL	**280**	**170**	**900**	**240**
Color (Apparent)	A.C.U.	**100**	**100**	**90**	**90**
SGT-HEM; Nonpolar Material (Total Petroleum Hydrocarbons)	mg/L	<10	<10	<10	<10
Turbidity	NTU	**1.4**	**1.1**	**1.7**	**2.2**
Gross-Alpha	pCi/L	u	u	u	u
Gross-Beta	pCi/L	u	u	u	u

u Result is less than the sample detection limit.

Appendix H
Quality Control Report
Surface Water Equipment Blanks
Spring Snowmelt Runoff 2005 Full Network
Eagle Project

Parameter	Units	EQBS001	EQBS002
Major Cations			
Calcium, Dissolved	mg/L	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50
General Chemistry			
Hardness, (Calculated) as CaCO3	mg/L	<3.0	<3.0

Appendix H
Quality Control Report
Surface Water Field Blanks
Spring Snowmelt Runoff 2005 Full Network
Eagle Project

Parameter	Units	FBKS001	FBKS002
Organics (BTEX)			
Benzene	µg/L	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0
Xylene (Total)	µg/L	<3.0	<3.0
Metals/Inorganics			
Aluminum, Total	µg/L	<50	<50
Lithium, Total	µg/L	<10	<10
Antimony, Total	µg/L	<2.0	<2.0
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	<10
Iron, Total	µg/L	<20	<20
Beryllium, Total	µg/L	<1.0	<1.0
Boron, Total	µg/L	<50	<50
Cadmium, Total	µg/L	<0.2	<0.2
Chromium, Total	µg/L	<1.0	<1.0
Cobalt, Total	µg/L	<10	<10
Copper, Total	µg/L	<1.0	<1.0
Lead, Total	µg/L	<1.0	<1.0
Manganese, Total	µg/L	<10	<10
Molybdenum, Total	µg/L	<10	<10
Nickel, Total	µg/L	<1.0	<1.0
Selenium, Total	µg/L	<2.0	<2.0
Silver, Total	µg/L	<0.2	<0.2
Zinc, Total	µg/L	<10	<10
Mercury, Total	ng/L	**0.100 U**	**0.100 U**
Major Anions			
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10
Nitrogen, Ammonia	mg/L	<0.02	<0.02
Nitrogen, Nitrate	mg/L	<0.05	<0.05
Nitrogen, Nitrite	mg/L	<0.05	<0.05
Sulfate	mg/L	<1.0	<1.0
Sulfide	mg/L	<1.0	<1.0
General Chemistry			
Residue, Dissolved @ 180°C	mg/L	<20	<20
Residue, Suspended	mg/L	<3	<3
Alkalinity, Total	mg/L	<2.0	<2.0
Chemical Oxygen Demand	mg/L	<5.0	<5.0
Carbon, Dissolved Organic	mg/L	<1.0	<1.0
Carbon, Total Organic	mg/L	<1.0	<1.0
BOD, (5-Day)	mg/L	<1.0	<1.0
Coliform, Total	col/100mL	<2	<2
Color (Apparent)	A.C.U.	<5	<5
SGT-HEM; Nonpolar Material (Total Petroleum Hydrocarbons)	mg/L	<10	<10
Turbidity	NTU	<1.0	<1.0
Gross-Alpha	pCi/L	u	u
Gross-Beta	pCi/L	u	u

U Result was below the reporting limit and reported at the method detection limit.
u Result is less than the sample detection limit.

Appendix H
Quality Control Report
Surface Water Charge Balance
Spring Snowmelt Runoff 2005 Full Network Representative Sample
Eagle Project

Ion	CDRAS002	
	mg/L	meq/L
Sodium	0.66	0.03
Potassium	0.67	0.02
Calcium	15	0.75
Magnesium	2.2	0.18
Chloride	0.50	0.01
Alkalinity, Bicarbonate	50	0.82
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.9	0.06
Iron	0.03	0.00
Copper	0.00	0.00
Manganese	0.01	0.00
Nitrate	0.06	0.00

Total Dissolved Solids: **73.0** **mg/L**

Ion Balance (Cations/Anions): **1.1**

Appendix H
Quality Control Report
Groundwater Masked Duplicates
Spring Snowmelt Runoff 2005 Full Network
Eagle Project

Parameter	Units	WLDP006	WLDP006 Duplicate	QALM004A	QALM004A Duplicate	QALM004D	QALM004D Duplicate	QALP016	QALP016 Duplicate
Metals/Inorganics									
Aluminum, Dissolved	µg/L	**500**	**440**	<50	<50	<50	<50	<50	<50
Boron, Dissolved	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Iron, Dissolved	µg/L	**8,730**	**8,420**	<20	<20	**99**	**100**	<20	<20
Lithium, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Manganese, Dissolved	µg/L	<20	<20	<20	<20	**58**	**59**	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	<2.0	<2.0	**9.4**	**9.5**	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Mercury, Dissolved	ng/L	**0.954**	**0.116 B**	**0.100 U**	**0.100 U**	**0.100 U**	**0.100 U**	**0.103 B**	**0.136 B**
Major Anions									
Alkalinity, Bicarbonate	mg/L	**7.3**	**6.6**	**44**	**39**	**81**	**82**	**72**	**71**
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	**1.3**	<1.0	<1.0	<1.0	**1.2**	<1.0	<1.0
Fluoride	mg/L	**0.38**	<0.10	<0.10	**0.10**	**0.20**	**0.15**	0.12	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05	**0.19**	**0.19**	<0.05	<0.05	**0.11**	**0.11**
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Major Cations									
Calcium, Dissolved	mg/L	<0.50	<0.50	**13**	**13**	**25**	**25**	**23**	**23**
Potassium, Dissolved	mg/L	<0.50	<0.50	**0.54**	**0.54**	**0.93**	**0.81**	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50	**2.3**	**2.2**	**3.3**	**3.3**	**3.6**	**3.7**
Sodium, Dissolved	mg/L	<0.50	<0.50	**0.87**	**0.90**	**2.2**	**2.2**	**0.86**	**0.88**
General Chemistry									
Hardness, (Calculated) as CaCO3	mg/L	<3	<3	**42**	**42**	**76**	**76**	**72**	**73**
Residue, Dissolved @ 180°C	mg/L	<50	<50	**60**	<50	**104**	**82**	**54**	**52**

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.
U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Groundwater Equipment Blanks
Spring Snowmelt Runoff 2005 Full Network
Eagle Project

Parameter	Units	EQBM001	EQBM002	EQBM003	EQBM004
Metals/Inorganics					
Aluminum, Dissolved	µg/L	<50	<50	<50	<50
Boron, Dissolved	µg/L	<100	<100	<100	<100
Cobalt, Dissolved	µg/L	<10	<10	<10	<10
Iron, Dissolved	µg/L	<20	<20	<20	<20
Lithium, Dissolved	µg/L	<10	<10	<10	<10
Manganese, Dissolved	µg/L	<20	<20	<20	<20
Antimony, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Arsenic, Dissolved	µg/L	<2.0	<2.0	<2.0	<2.0
Barium, Dissolved	µg/L	<20	<20	<20	<20
Beryllium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Cadmium, Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5
Chromium, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Copper, Dissolved	µg/L	<5.0	<5.0	<5.0	<5.0
Lead, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Molybdenum, Dissolved	µg/L	<10	<10	<10	<10
Nickel, Dissolved	µg/L	<25	<25	<25	<25
Selenium, Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0
Silver, Dissolved	µg/L	<0.2	<0.2	<0.2	<0.2
Zinc, Dissolved	µg/L	<10	<10	<10	<10
Mercury, Dissolved	ng/L	**0.142 B**	**0.100 U**	**0.100 U**	**0.100 U**
Major Cations					
Calcium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Potassium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Magnesium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50
Sodium, Dissolved	mg/L	<0.50	<0.50	<0.50	<0.50

B Estimated value because sample result is above the method detection limit of 0.10 ng/L but below the reporting limit of 0.25 ng/L.

U Result was below the reporting limit and reported at the method detection limit.

Appendix H
Quality Control Report
Groundwater Field Blanks
Spring Snowmelt Runoff 2005 Full Network
Eagle Project

Parameter	Units	FBKM001	FBKM002	FBKM003	FBKM004
Major Anions					
Alkalinity, Bicarbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Alkalinity, Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0
Chloride	mg/L	<1.0	<1.0	<1.0	<1.0
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate	mg/L	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/L	<5.0	<5.0	<5.0	<5.0
General Chemistry					
Residue, Dissolved @ 180°C	mg/L	<50	<50	<50	<50

Appendix H
Quality Control Report
Groundwater Charge Balance
Spring Snowmelt Runoff 2005 Full Network Representative Samples
Eagle Project

Ion	QALM010A	
	mg/L	meq/L
Sodium	1.4	0.06
Potassium	0.92	0.02
Calcium	12	0.60
Magnesium	2.2	0.18
Chloride	0.5	0.01
Alkalinity, Bicarbonate	39	0.64
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.01	0.00
Copper	0.01	0.00
Aluminum	0.03	0.00
Manganese	0.01	0.00
Nitrate	0.19	0.00

Total Dissolved Solids: **59.8** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Ion	QALP016	
	mg/L	meq/L
Sodium	0.86	0.04
Potassium	0.25	0.01
Calcium	23	1.15
Magnesium	3.6	0.30
Chloride	0.5	0.01
Alkalinity, Bicarbonate	72	1.18
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.01	0.00
Copper	0.03	0.00
Aluminum	0.03	0.00
Manganese	0.01	0.00
Nitrate	0.11	0.00

Total Dissolved Solids: **103.9** **mg/L**

Ion Balance (Cations/Anions): **1.2**

Appendix H
Quality Control Report
Groundwater Charge Balance
Spring Snowmelt Runoff 2005 Full Network Representative Samples
Eagle Project

Ion	WLDP016	
	mg/L	meq/L
Sodium	1.2	0.05
Potassium	0.90	0.02
Calcium	25	1.25
Magnesium	5.9	0.49
Chloride	0.5	0.01
Alkalinity, Bicarbonate	83	1.36
Alkalinity, Carbonate	1.0	0.03
Sulfate	2.5	0.05
Iron	0.14	0.01
Copper	0.03	0.00
Aluminum	0.03	0.00
Manganese	0.01	0.00
Nitrate	0.03	0.00

Total Dissolved Solids: **120.2** **mg/L**

Ion Balance (Cations/Anions): **1.3**

Appendix H
Quality Control Report
DEQ Surface Water Data Comparison 2003
Monitoring Location YDR002 (DEQ YDR001)
Eagle Project

Parameter	Units	Winter Baseflow	DEQ Result
		12/4/03	12/4/03
Metals/ Inorganics			
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	**6.5**
Cadmium, Total	µg/L	<0.2	<0.2
Chromium, Total	µg/L	<1.0	<1.0
Cobalt, Total	µg/L	<10	<15
Copper, Total	µg/L	<1.0	<1.0
Iron, Total	µg/L	**510**	**500**
Lead, Total	µg/L	<1.0	<1.0
Lithium, Total	µg/L	<20	<10
Manganese, Total	µg/L	**28**	**26**
Nickel, Total	µg/L	<10	<2.0
Selenium, Total	µg/L	<2.0	<1.0
Silver, Total	µg/L	<0.2	<0.5
Zinc, Total	µg/L	**24**	<10
Mercury	ng/L	<0.2	<0.2
Major Anions			
Alkalinity, Bicarbonate	mg/L	**23**	**22**
Nitrogen, Ammonia	mg/L	<0.05	**.027**
Nitrate + Nitrite	mg N/L	**0.10**	**.096**
Nitrogen, Total Kjeldahl	mg/L	<0.50	**.32**
Major Cations			
Calcium	mg/L	**7.2**	**7.6**
Potassium	mg/L	<0.50	**0.4**
Magnesium	mg/L	**1.6**	**1.6**
Sodium	mg/L	**1.7**	**2.7**
General Chemistry			
Hardness (calculated) as CaCO3	mg/L	**25**	**26**
Chemical Oxygen Demand	mg/L	**24**	**25**
Carbon, Total Organic	mg/L	**9.2**	**9.4**

Appendix H
Quality Control Report
DEQ Surface Water Data Comparison 2003
Monitoring Location STR002 (DEQ STR001)
Eagle Project

Parameter	Units	Winter Baseflow	DEQ Result
		12/4/03	12/4/03
Metals/ Inorganics			
Arsenic, Total	µg/L	<1.0	<1.0
Barium, Total	µg/L	<10	**8.1**
Cadmium, Total	µg/L	<0.2	<0.2
Chromium, Total	µg/L	<1.0	<1.0
Cobalt, Total	µg/L	<10	<15
Copper, Total	µg/L	<1.0	<1.0
Iron, Total	µg/L	**220**	**210**
Lead, Total	µg/L	<1.0	<1.0
Lithium, Total	µg/L	<20	<10
Manganese, Total	µg/L	<10	**7.3**
Nickel, Total	µg/L	<10	<2.0
Selenium, Total	µg/L	<2.0	<1.0
Silver, Total	µg/L	<0.2	<0.5
Zinc, Total	µg/L	**145**	<10
Mercury	ng/L	<0.2	<0.2
Major Anions			
Alkalinity, Bicarbonate	mg/L	**30**	**32**
Nitrogen, Ammonia	mg/L	<0.05	**.010**
Nitrate + Nitrite	mg N/L	**0.09**	**.089**
Nitrogen, Total Kjeldahl	mg/L	<0.50	**.16**
Major Cations			
Calcium	mg/L	**9.3**	**9.4**
Potassium	mg/L	**0.67**	**0.6**
Magnesium	mg/L	**2.0**	**1.9**
Sodium	mg/L	**3.2**	**2.0**
General Chemistry			
Hardness (calculated) as CaCO3	mg/L	**31**	**31**
Chemical Oxygen Demand	mg/L	**12**	**13**
Carbon, Total Organic	mg/L	**4.4**	**4.4**

Appendix H
Quality Control Report
DEQ Surface Water Data Comparison 2004
Salmon Trout River
Monitoring Location STRM001 (DEQ ST7)
Eagle Project

Parameter	Units	Summer Baseflow	DEQ Result	Fall Rain Runoff	DEQ Result	Fall Rain Runoff	DEQ Result
		8/4/04	8/3/04	10/4/04	10/5/04	11/9/04	11/9/04
Field Parameters							
Temperature	°C	**16**	**20.2**	**6.9**	**4.9**	**2.2**	NM
Specific Conductance	µmhos/cm @ 25°C	**99**	**79.8**	**40**	**41.00**	**38**	**40.80**
pH	SU	**7.5**	**6.53**	**6.4**	**6.51**	**6.3**	**6.81**
D.O.	ppm	**2**	**1.4**	**3.5**	**6.4**	**5**	**8.4**
Flow	cfs	**0.1**	**0.41**	**0.2**	NM	NM	NM
Metals/Inorganics							
Arsenic, Total	µg/L	**1.5**	**1.3**	<1.0	ND	<1.0	ND
Barium, Total	µg/L	**32**	**29**	<10	**9.3**	<10	**8.2**
Iron, Total	µg/L	**5,860**	**5,300**	**490**	**500**	**350**	**340**
Copper, Total	µg/L	<1.0	ND	<1.0	ND	<1.0	ND
Manganese, Total	µg/L	**369**	**360**	**25**	**21**	**17**	**15**
Nickel, Total	µg/L	<1.0	ND	<1.0	ND	<1.0	ND
Mercury, Total	ng/L	**2.870**	**3.2**	**0.940**	0	**0.810**	**0.6**
Major Anions							
Chloride	mg/L	**1.6**	**0.7**	<1.0	ND	<1.0	ND
Nitrogen, Ammonia	mg/L	**0.05**	**0.046**	**0.06**	**0.015**	<0.05	**0.01**
Nitrogen, Nitrate	mg/L	<0.05	NM	<0.05	NM	<0.05	NM
Nitrogen, Nitrite	mg/L	<0.05	NM	<0.05	NM	<0.05	NM
Nitrate + Nitrite (DEQ)	mg N/L	NM	0.004	NM	0.004	NM	0.013
Sulfate	mg/L	<5.0	**6**	<5.0	ND	<5.0	ND
Major Cations							
Calcium, Dissolved	mg/L	**12**	**11.2**	**4.9**	**4.9**	**4.5**	**4.6**
Potassium, Dissolved	mg/L	**0.54**	**0.6**	**0.74**	**0.7**	**0.65**	**0.6**
Magnesium, Dissolved	mg/L	**2.3**	**2**	**1.2**	**1.1**	**1.1**	**1.1**
Sodium, Dissolved	mg/L	**0.53**	ND	**0.68**	ND	<0.50	ND
General Chemistry							
Hardness (calculated) as CaCO3	mg/L	**39**	**36**	**17**	**17**	**16**	**16**
Residue, Dissolved @ 180°C	mg/L	**91**	**60**	**49**	**27**	<20	**29**
Residue, Suspended	mg/L	**10**	**4**	<4	ND	<3	ND
Alkalinity, Total	mg/L	**38**	**23**	**17**	**18**	**13**	**14**
Chemical Oxygen Demand	mg/L	**35**	**44**	**14**	**17**	**15**	**17**
Carbon, Total Organic	mg/L	**14**	**12**	**4.8**	**4.4**	**5.0**	**5**

ND Not detected.
NM Not measured.

Appendix H
Quality Control Report
DEQ Surface Water Data Comparison 2004
Salmon Trout River
Monitoring Location STRM002 (DEQ ST4)
Eagle Project

Parameter	Units	Summer Baseflow	DEQ Result	Fall Rain Runoff	DEQ Result	Fall Rain Runoff	DEQ Result	Fall Rain Runoff	DEQ Result
		8/3/04	8/3/04	9/14/04	9/14/04	10/4/04	10/5/04	11/9/04	11/9/04
Field Parameters									
Temperature	°C	**16**	**16.3**	**16**	**15.2**	**7.0**	NM	**2.4**	NM
Specific Conductance	µmhos/cm @ 25°C	**66**	**64.30**	**69**	**68.60**	**57**	**56.28**	**57**	**53.00**
pH	SU	**7.2**	**7.10**	**7.3**	**6.75**	**7.1**	**6.36**	**7.3**	**6.84**
D.O.	ppm	**8**	**9.3**	**7**	**8.6**	**7**	**12.2**	**9**	**14.2**
Flow	cfs	**1.8**	**1.38**	**4.3**	**1.22**	**2.1**	**2.18**	**1.6**	**2.25**
Metals/Inorganics									
Arsenic, Total	µg/L	<1.0	ND	<1.0	NM	<1.0	ND	<1.0	ND
Barium, Total	µg/L	**12**	**12**	**12**	**12**	<10	**9.9**	<10	**9.8**
Iron, Total	µg/L	**580**	**540**	**400**	**370**	**330**	**340**	**320**	**280**
Copper, Total	µg/L	<1.0	ND	<1.0	NM	<1.0	ND	<1.0	ND
Manganese, Total	µg/L	**23**	**24**	**18**	**15**	**13**	**13**	**12**	**8.8**
Nickel, Total	µg/L	<1.0	ND	<1.0	NM	<1.0	ND	<1.0	ND
Mercury, Total	ng/L	**2.210**	**2.0**	**1.270**	**1.0**	**1.990**	**1.4**	**1.660**	**1.6**
Major Anions									
Chloride	mg/L	**1.1**	ND	**1.0**	**2.8**	<1.0	ND	<1.0	**0.6**
Nitrogen, Ammonia	mg/L	<0.05	**0.016**	<0.05	**0.009**	<0.05	**0.01**	<0.05	**0.009**
Nitrogen, Nitrate	mg/L	<0.05	NM	<0.05	NM	<0.05	NM	<0.05	NM
Nitrogen, Nitrite	mg/L	<0.05	NM	<0.05	NM	<0.05	NM	<0.05	NM
Nitrate + Nitrite (DEQ)	mg N/L	NM	0.025	NM	0.023	NM	0.025	NM	0.042
Sulfate	mg/L	<5.0	ND	<5.0	ND	<5.0	ND	<5.0	ND
Major Cations									
Calcium, Dissolved	mg/L	**10**	**9.7**	**10**	**10.2**	**8.1**	**8.1**	**7.9**	**7.9**
Potassium, Dissolved	mg/L	<0.50	**0.4**	<0.50	**0.5**	**0.67**	**0.6**	**0.64**	**0.6**
Magnesium, Dissolved	mg/L	**2.0**	**1.7**	**2.2**	**2**	**1.8**	**1.8**	**1.7**	**1.7**
Sodium, Dissolved	mg/L	<0.50	ND	**1.0**	**1.4**	**0.65**	ND	<0.50	**1.3**
General Chemistry									
Hardness (calculated) as CaCO3	mg/L	**33**	**31**	**34**	**34**	**28**	**28**	**27**	**27**
Residue, Dissolved @ 180°C	mg/L	**67**	**25**	**58**	**50**	**58**	**43**	<20	**44**
Residue, Suspended	mg/L	<3	ND	<3	ND	<3	**4**	<3	**2**
Alkalinity, Total	mg/L	**38**	**30**	**34**	**25**	**24**	**26**	**36**	**24**
Chemical Oxygen Demand	mg/L	**22**	**25**	**15**	**16**	**24**	**10**	**19**	**16**
Carbon, Total Organic	mg/L	**7.7**	**7.7**	**5.6**	**5.3**	**7.7**	**6.5**	**6.6**	**6.2**

ND Not detected.
NM Not measured.

Appendix H
Quality Control Report
DEQ Surface Water Data Comparison 2004
Salmon Trout River
Monitoring Location STRM003 (DEQ ST3)
Eagle Project

Parameter	Units	Summer Baseflow	DEQ Result	Fall Rain Runoff	DEQ Result	Fall Rain Runoff	DEQ Result
		8/4/04	8/3/04	10/4/04	10/5/04	11/9/04	11/9/04
Field Parameters							
Temperature	°C	**13**	**11.7**	**6.4**	**5.7**	**1.9**	NM
Specific Conductance	µmhos/cm @ 25°C	**72**	**89.43**	**87**	**83.00**	**96**	**80.70**
pH	SU	**8.1**	**7.98**	**7.9**	**7.74**	**7.8**	**7.35**
D.O.	ppm	**7**	**10.2**	**7**	**12.7**	**9**	**12.6**
Flow	cfs	**4**	**3.01**	**5.5**	**4.36**	NM	**4.59**
Metals/Inorganics							
Arsenic, Total	µg/L	**1.3**	**1.2**	**1.3**	ND	<1.0	**1**
Barium, Total	µg/L	<10	**9.4**	<10	**8.4**	<10	**8.7**
Iron, Total	µg/L	**280**	**240**	**210**	**190**	**160**	**180**
Copper, Total	µg/L	<1.0	ND	<1.0	ND	<1.0	ND
Manganese, Total	µg/L	**11**	**11**	**12**	**9.8**	<10	**9.8**
Nickel, Total	µg/L	<1.0	ND	<1.0	ND	<1.0	ND
Mercury, Total	ng/L	**1.410**	**0.8**	**1.620**	**1.0**	**1.100**	**1.2**
Major Anions							
Chloride	mg/L	<1.0	ND	<1.0	ND	<1.0	ND
Nitrogen, Ammonia	mg/L	<0.05	**0.006**	**0.13**	**0.006**	<0.05	**0.003**
Nitrogen, Nitrate	mg/L	**0.12**	NM	**0.11**	NM	**0.130**	NM
Nitrogen, Nitrite	mg/L	<0.05	NM	<0.05	NM	<0.05	NM
Nitrate + Nitrite (DEQ)	mg N/L	NM	0.141	NM	0.115	NM	0.127
Sulfate	mg/L	<5.0	ND	<5.0	ND	<5.0	ND
Major Cations							
Calcium, Dissolved	mg/L	**15**	**13.7**	**13**	**13**	**13**	**12.8**
Potassium, Dissolved	mg/L	**0.54**	**0.5**	**0.60**	**0.6**	**0.54**	**0.6**
Magnesium, Dissolved	mg/L	**2.6**	**2.5**	**2.4**	**2.3**	**2.4**	**2.4**
Sodium, Dissolved	mg/L	**0.97**	ND	**0.82**	ND	**0.65**	ND
General Chemistry							
Hardness (calculated) as CaCO3	mg/L	**48**	**45**	**42**	**42**	**42**	**42**
Residue, Dissolved @ 180°C	mg/L	**75**	**105**	**66**	**47**	<20	**56**
Residue, Suspended	mg/L	<3	**2**	<3	**2**	<3	**2**
Alkalinity, Total	mg/L	**44**	**42**	**40**	**36**	**41**	**35**
Chemical Oxygen Demand	mg/L	**10**	**11**	**13**	**21**	**12**	**14**
Carbon, Total Organic	mg/L	**3.7**	**3.8**	**4.0**	**4.1**	**3.7**	**3.8**

ND Not detected.
NM Not measured.

Appendix H
Quality Control Report
DEQ Surface Water Data Comparison 2004
Salmon Trout River
Monitoring Location YDRM002 (DEQ ST2)
Eagle Project

Parameter	Units	Summer Baseflow	DEQ Result	Fall Rain Runoff	DEQ Result	Fall Rain Runoff	DEQ Result	Fall Rain Runoff	DEQ Result
		8/3/04	8/3/04	9/14/04	9/14/04	10/4/04	10/5/04	11/9/04	11/9/04
Field Parameters									
Temperature	°C	**17**	**17.2**	**17**	**16.7**	**7.7**	**5.9**	**1.7**	NM
Specific Conductance	µmhos/cm @ 25°C	**65**	**64.10**	**90**	**139.4**	**75**	**74.80**	**54**	**48.40**
pH	SU	**7.2**	**6.93**	**7.4**	**6.86**	**7.3**	**7.28**	**7.0**	**6.92**
D.O.	ppm	**7**	**9.2**	**7**	**7.6**	**7**	**11.4**	**9**	**13.9**
Flow	cfs	**12**	**14.26**	**16**	**7.74**	**13**	**13.55**	**20**	**24.85**
Metals/Inorganics									
Arsenic, Total	µg/L	**1.3**	**1.1**	**1.1**	NM	<1.0	ND	<1.0	ND
Barium, Total	µg/L	<10	**9.1**	<10	**9.6**	<10	**7.9**	<10	**7.4**
Iron, Total	µg/L	**1,060**	**1,100**	**1,200**	**1,200**	**880**	**940**	**750**	**790**
Copper, Total	µg/L	<1.0	ND	<1.0	NM	<1.0	ND	<1.0	ND
Manganese, Total	µg/L	**31**	**33**	**21**	**21**	**23**	**21**	**34**	**32**
Nickel, Total	µg/L	<1.0	ND	<1.0	NM	<1.0	ND	<1.0	ND
Mercury, Total	ng/L	**2.850**	**3.2**	**1.860**	**1.8**	**4.460**	**2.5**	**3.050**	**4.0**
Major Anions									
Chloride	mg/L	**1.1**	ND	**1.3**	**1.1**	<1.0	ND	<1.0	**0.7**
Nitrogen, Ammonia	mg/L	<0.05	**0.018**	<0.05	**0.007**	**0.09**	**0.014**	<0.05	**0.021**
Nitrogen, Nitrate	mg/L	<0.05	NM	<0.05	NM	<0.05	NM	<0.05	NM
Nitrogen, Nitrite	mg/L	<0.05	NM	<0.05	NM	<0.05	NM	<0.05	NM
Nitrate + Nitrite (DEQ)	mg N/L	NM	0.035	NM	0.015	NM	0.028	NM	0.045
Sulfate	mg/L	<5.0	**4**	<5.0	ND	<5.0	ND	<5.0	ND
Major Cations									NM
Calcium, Dissolved	mg/L	**10**	**9.5**	**13**	**13.3**	**10**	**11**	**7.5**	**7.6**
Potassium, Dissolved	mg/L	<0.50	**0.4**	**0.52**	**0.5**	**0.62**	**0.5**	<0.50	**0.4**
Magnesium, Dissolved	mg/L	**2.0**	**1.8**	**2.9**	**2.6**	**2.3**	**2.3**	**1.6**	**1.6**
Sodium, Dissolved	mg/L	<0.50	ND	**0.91**	**1.5**	**0.90**	ND	**0.86**	ND
General Chemistry									
Hardness, (calculated) as CaCO3	mg/L	**33**	**31**	**44**	**44**	**34**	**37**	**25**	**26**
Residue, Dissolved @ 180°C	mg/L	**75**	**35**	**75**	**65**	**70**	**54**	**25**	**57**
Residue, Suspended	mg/L	<3	ND	<3	ND	<3	ND	<3	**1**
Alkalinity, Total	mg/L	**24**	**19**	**38**	**36**	**30**	**33**	**18**	**22**
Chemical Oxygen Demand	mg/L	**23**	**31**	**16**	**16**	**26**	**30**	**33**	**40**
Carbon, Total Organic	mg/L	**8.5**	**8.6**	**6.2**	**6.1**	**8.3**	**9.1**	**12**	**12**

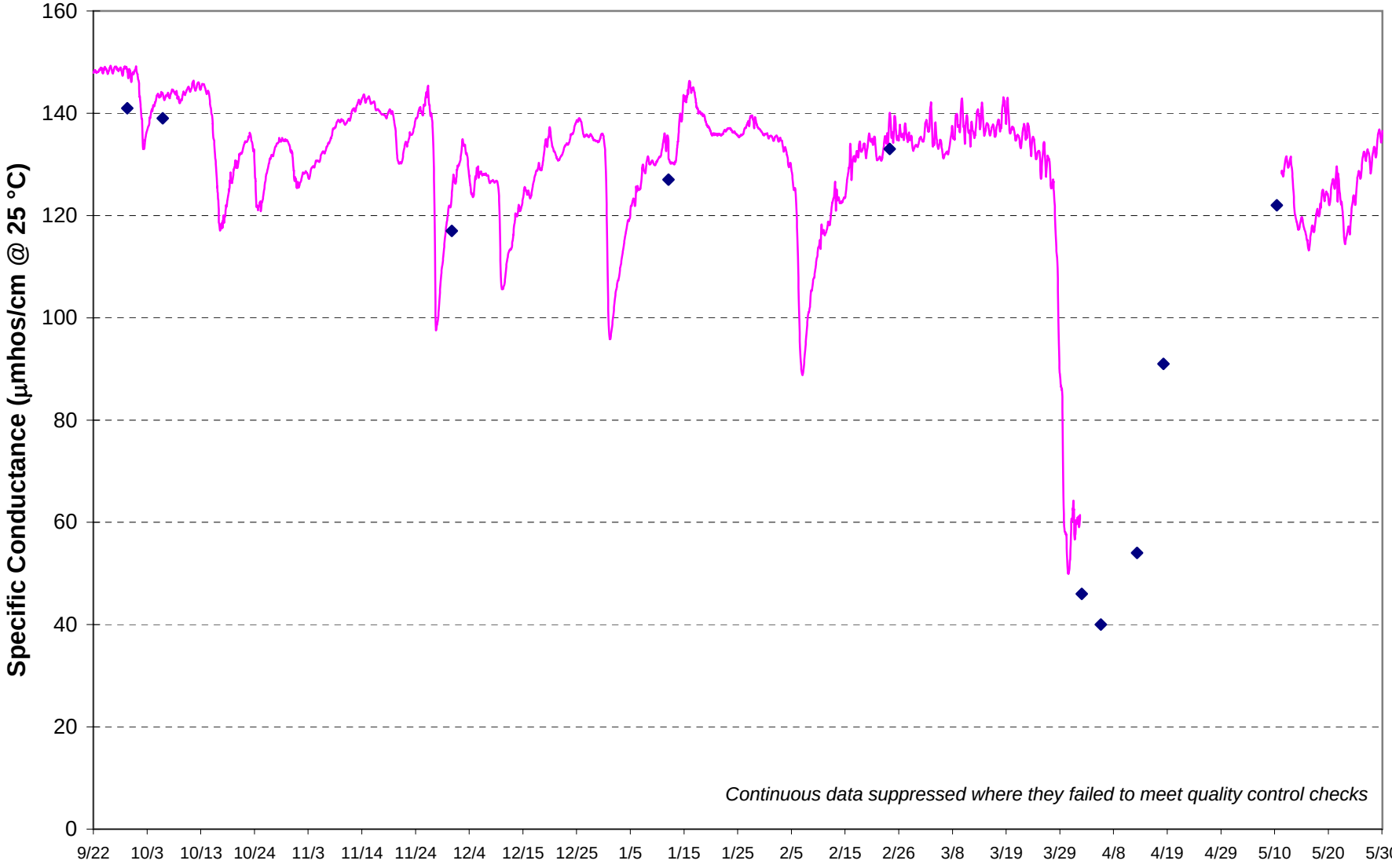
ND Not detected.
NM Not measured.

Appendix H
Quality Control Report
DEQ Surface Water Data Comparison 2004
Salmon Trout River
Monitoring Location CDRM004 (DEQ ST5)
Eagle Project

Parameter	Units	Summer Baseflow	DEQ Result	Fall Rain Runoff	DEQ Result	Fall Rain Runoff	DEQ Result	Fall Rain Runoff	DEQ Result
		8/3/04	8/3/04	9/14/04	9/14/04	10/4/04	10/5/04	11/9/04	11/9/04
Field Parameters									
Temperature	°C	**14**	**15.2**	**14**	**14.4**	**6.9**	**5.7**	**2.6**	**2.6**
Specific Conductance	µmhos/cm @ 25°C	**116**	**142.1**	**149**	**146.0**	**141**	**134.0**	**134**	**125.3**
pH	SU	**8.0**	**7.69**	**8.0**	**7.43**	**7.8**	**7.55**	**7.8**	**6.84**
D.O.	ppm	**9**	**8.6**	**7**	**10.5**	**7**	**13.1**	**9**	**8.0**
Flow	cfs	**9.5**	**10.79**	**7.7**	**9.57**	**12**	**11.91**	NM	**12.69**
Metals/Inorganics									
Arsenic, Total	µg/L	**2.3**	**2.2**	**2.3**	NM	**1.8**	**1.4**	**1.3**	**1.6**
Barium, Total	µg/L	**14**	**15**	**15**	**15**	**13**	**12**	**11**	**12**
Iron, Total	µg/L	**160**	**150**	**140**	**160**	**120**	**120**	**100**	**110**
Copper, Total	µg/L	<1.0	**6.7**	<1.0	NM	<1.0	ND	<1.0	ND
Manganese, Total	µg/L	**16**	**21**	**11**	**13**	**15**	**13**	**13**	**13**
Nickel, Total	µg/L	<1.0	**2.8**	<1.0	NM	<1.0	ND	<1.0	ND
Mercury, Total	ng/L	**0.981**	**0.9**	**0.890**	**0.7**	**0.856**	**0.6**	**0.691**	**0.8**
Major Anions									
Chloride	mg/L	<1.0	ND	<1.0	**1.4**	<1.0	ND	<1.0	**0.5**
Nitrogen, Ammonia	mg/L	<0.05	**0.006**	<0.05	**0.002**	<0.05	**0.006**	<0.05	**0.004**
Nitrogen, Nitrate	mg/L	<0.05	NM	<0.05	NM	<0.05	NM	<0.05	NM
Nitrogen, Nitrite	mg/L	<0.05	NM	<0.05	NM	<0.05	NM	<0.05	NM
Nitrate + Nitrite (DEQ)	mg N/L	NM	0.037	NM	0.026	NM	0.037	NM	0.051
Sulfate	mg/L	<5.0	ND	<5.0	ND	<5.0	ND	<5.0	ND
Major Cations									
Calcium, Dissolved	mg/L	**25**	**23.4**	**24**	**23**	**22**	**21.1**	**21**	**21.1**
Potassium, Dissolved	mg/L	<0.50	**0.4**	**0.59**	**0.5**	**0.53**	**0.5**	<0.50	**0.6**
Magnesium, Dissolved	mg/L	**4.0**	**3.6**	**4.0**	**3.5**	**3.7**	**3.6**	**3.6**	**3.5**
Sodium, Dissolved	mg/L	**1.3**	ND	**1.2**	**1.8**	**1.1**	**1.3**	**1.0**	**1.4**
General Chemistry									
Hardness, (calculated) as CaCO3	mg/L	**79**	**73**	**76**	**72**	**70**	**68**	**67**	**67**
Residue, Dissolved @ 180°C	mg/L	**99**	**50**	**96**	**90**	**99**	**78**	**90**	**89**
Residue, Suspended	mg/L	<3	ND	<3	ND	<3	**2**	<3	**2**
Alkalinity, Total	mg/L	**72**	**68**	**69**	**69**	**65**	**64**	**68**	**52**
Chemical Oxygen Demand	mg/L	**8.7**	**7.9**	**19**	**10**	**13**	**7.6**	**9.5**	**11**
Carbon, Total Organic	mg/L	**3.2**	**3.5**	**2.8**	**3.2**	**3.3**	**3.3**	**3.2**	**3.3**

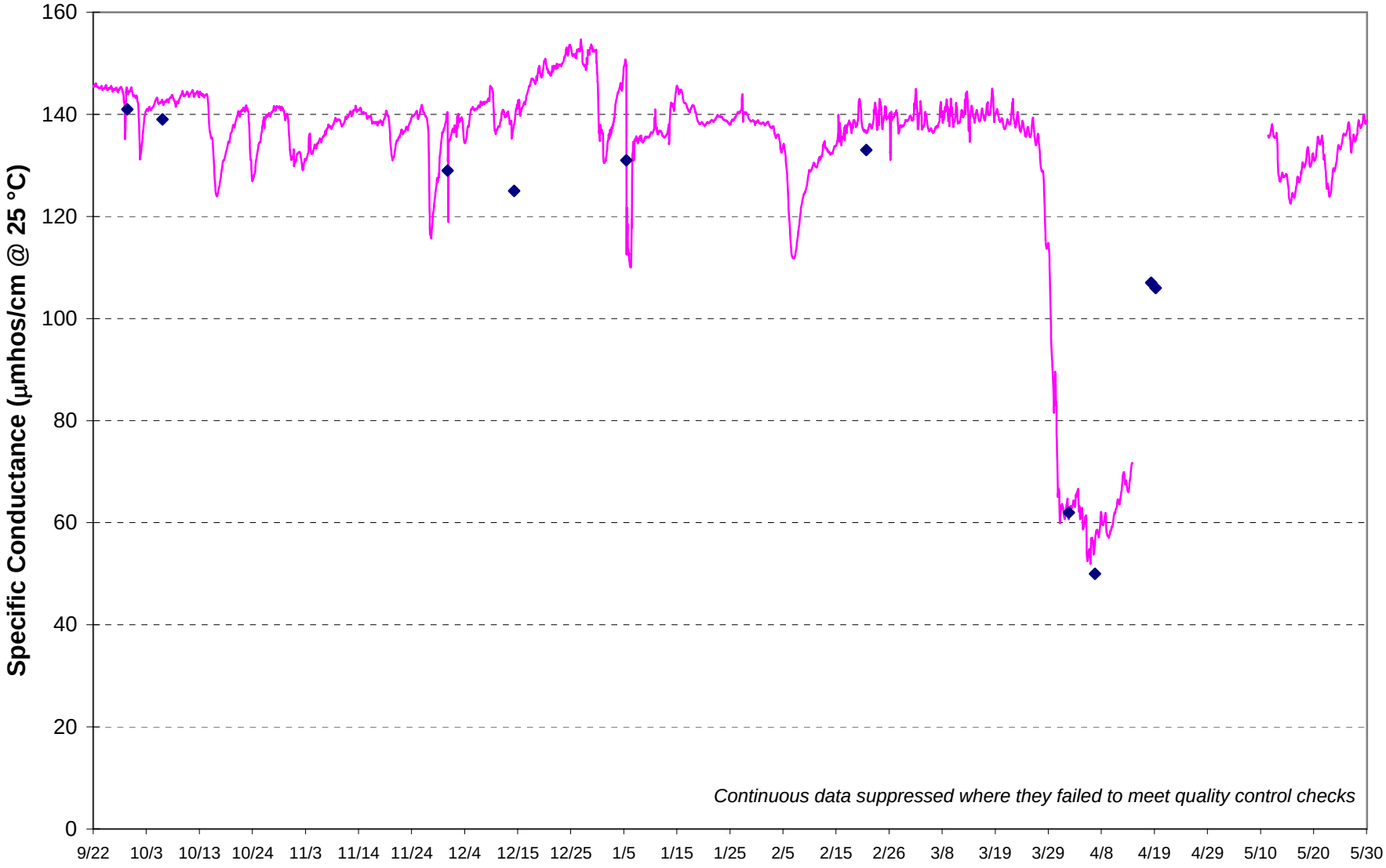
ND Not detected.
NM Not measured.

Appendix H
Quality Control Report
Hourly Surface Water Specific Conductance Data with Discrete Measurements
Salmon Trout River Monitoring Location STRM005
September 2004 - May 2005
Eagle Project



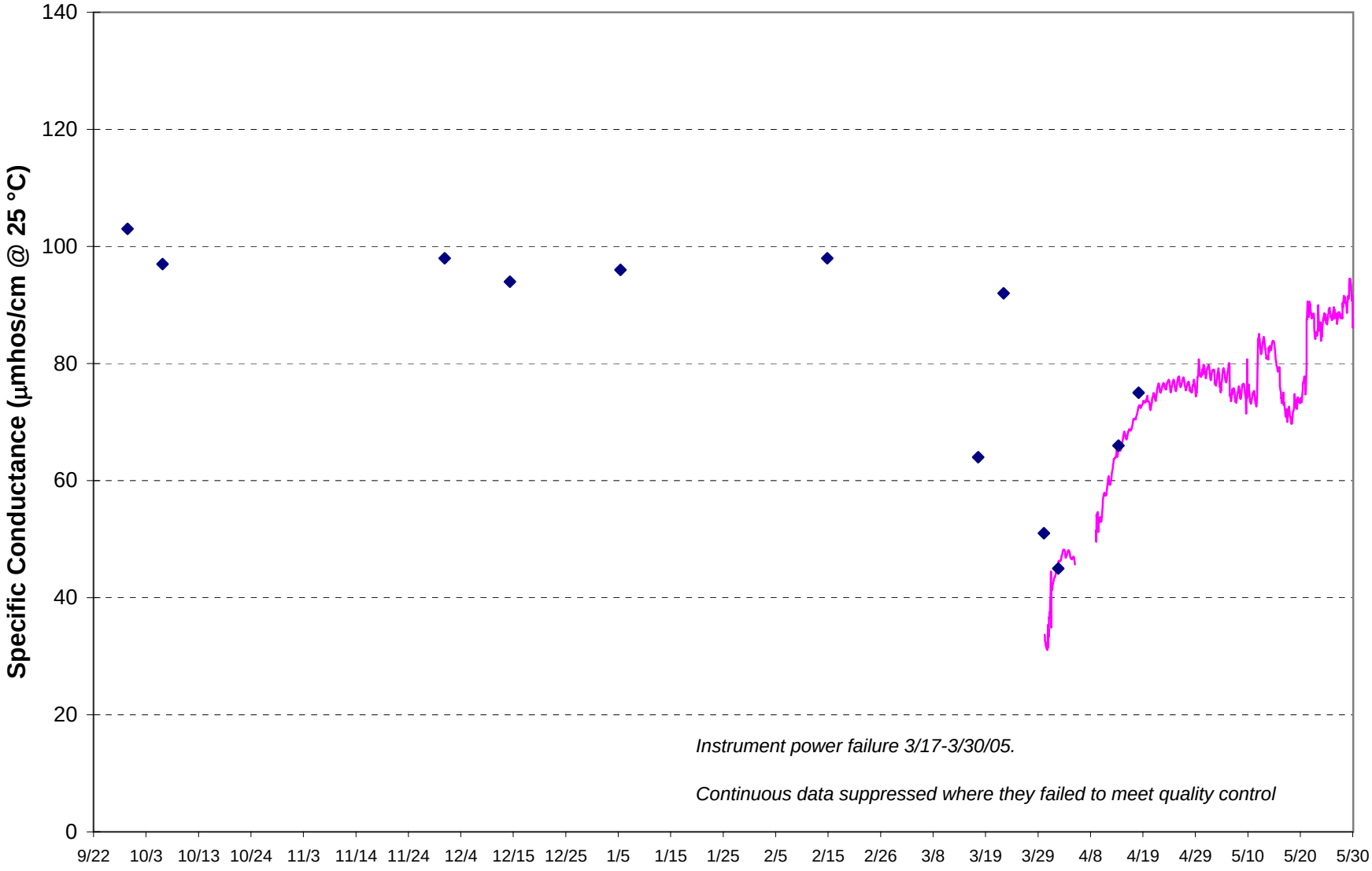
Hourly Sp Cond with Discrete: STRM005

Appendix H
Quality Control Report
Hourly Surface Water Specific Conductance Data with Discrete Measurements
Salmon Trout River Monitoring Location STRE002
September 2004 - May 2005
Eagle Project



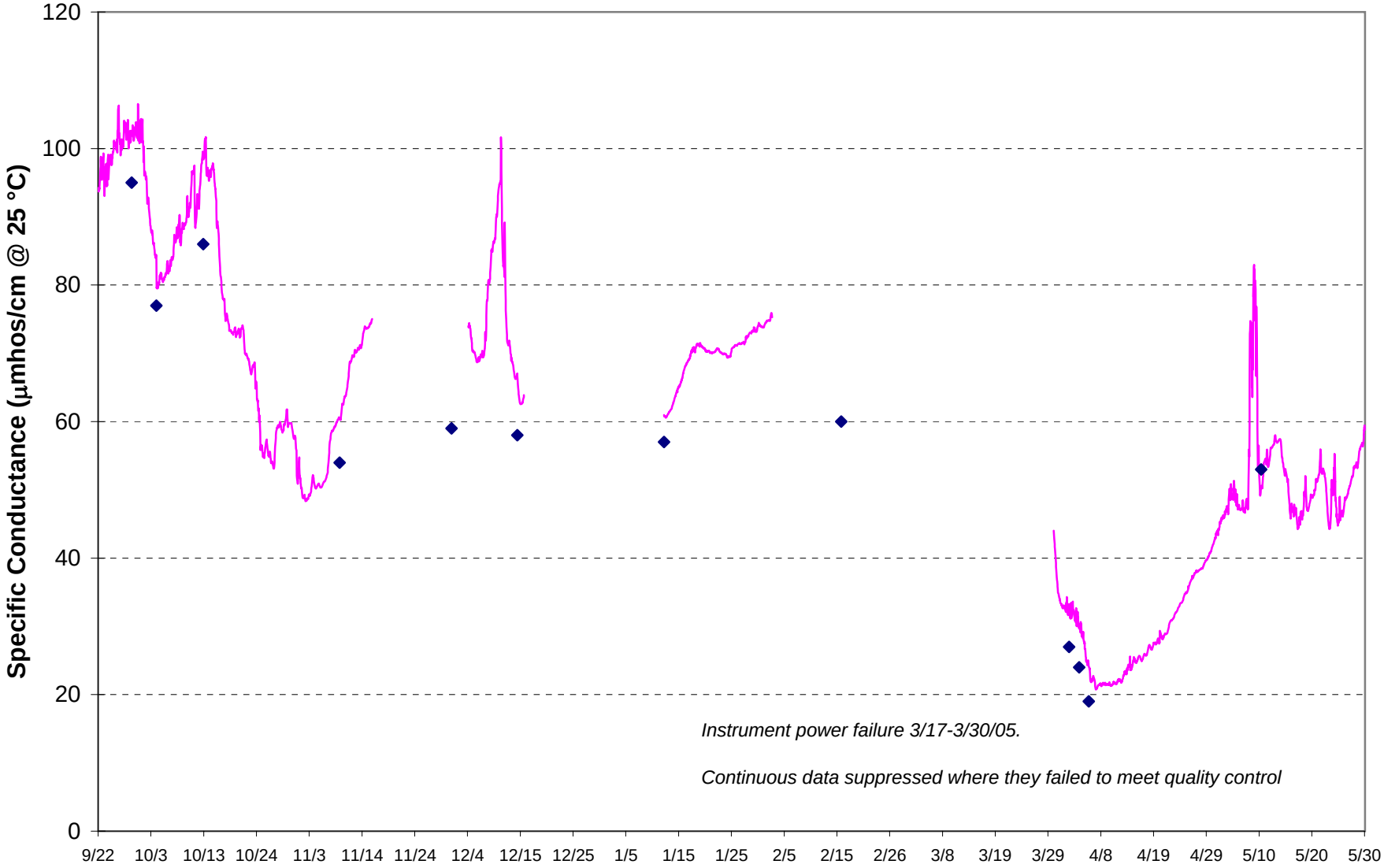
Hourly Sp Cond with Discrete: STRE002

Appendix H
Quality Control Report
Hourly Surface Water Specific Conductance Data with Discrete Measurements
Salmon Trout River Monitoring Location STRM004
September 2004 - May 2005
Eagle Project



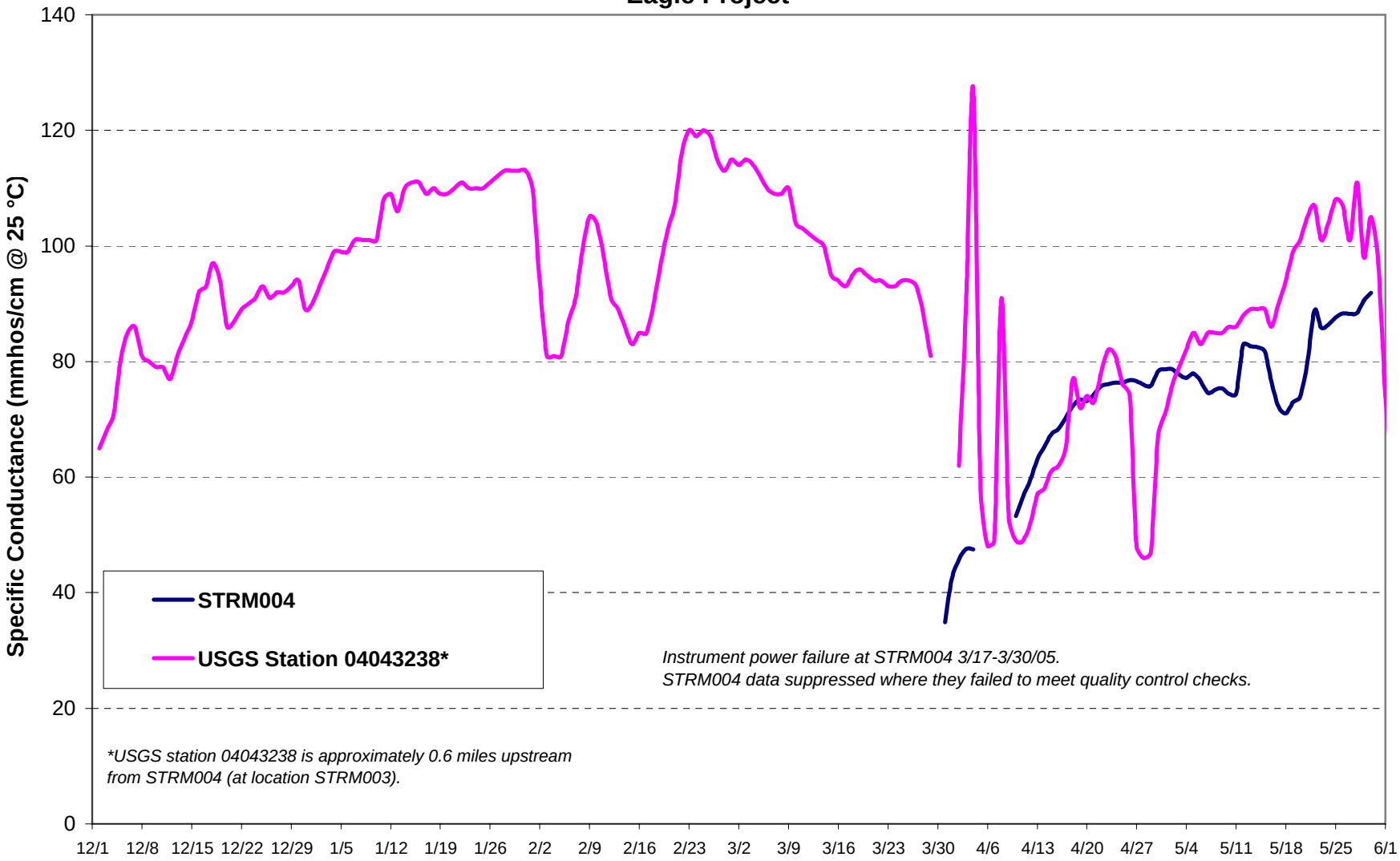
Hourly Sp Cond with Discrete: STRM004

Appendix H
Quality Control Report
Hourly Surface Water Specific Conductance Data with Discrete Measurements
Yellow Dog River Monitoring Location YDRM002
September 2004 - May 2005
Eagle Project



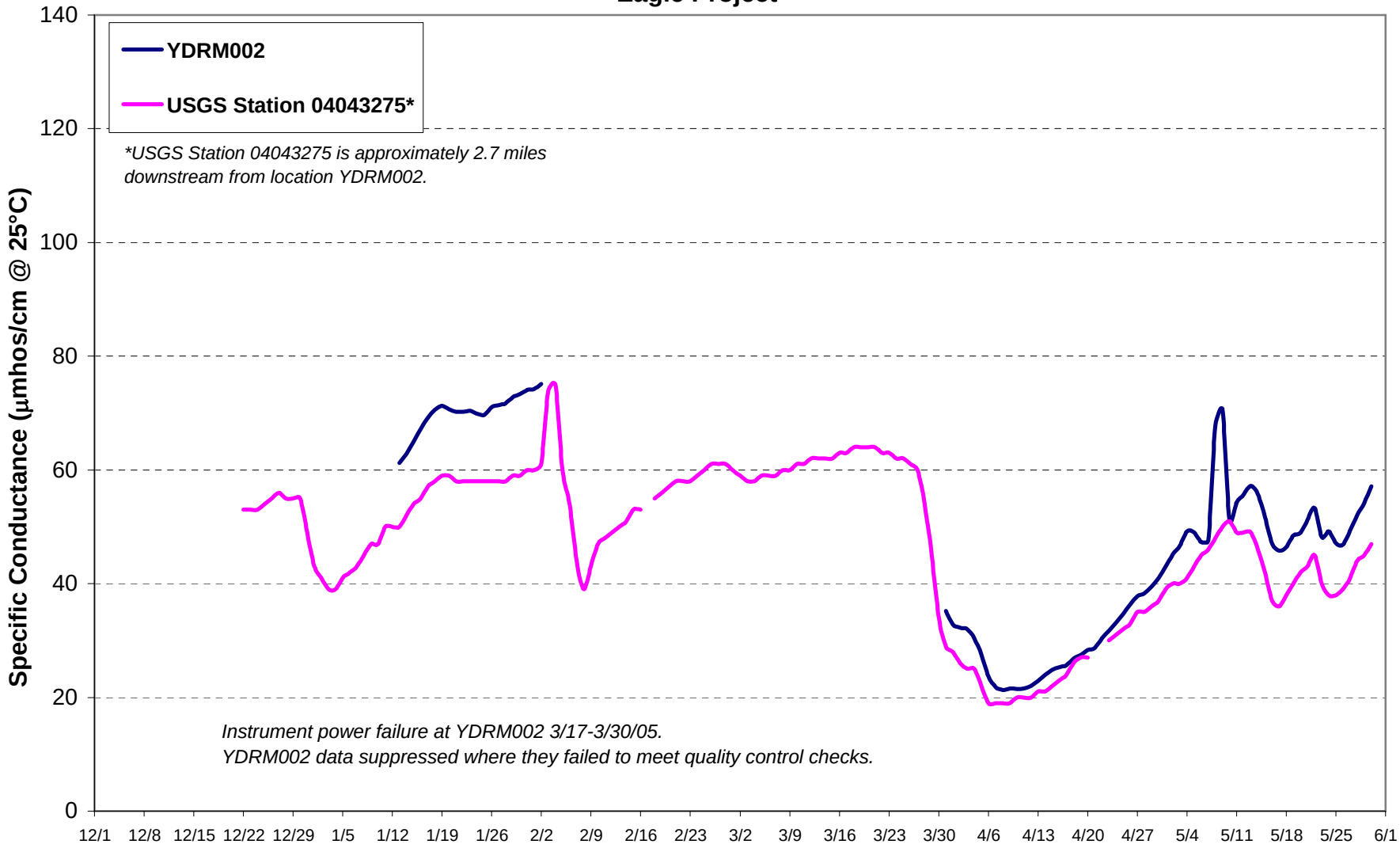
Hourly Sp Cond with Discrete: YDRM002

Appendix H
Quality Control Report
Mean Daily Specific Conductance at Salmon Trout River Continuous Monitoring Location STRM004
Compared to USGS Station 04043238
December 2004 - May 2005
Eagle Project



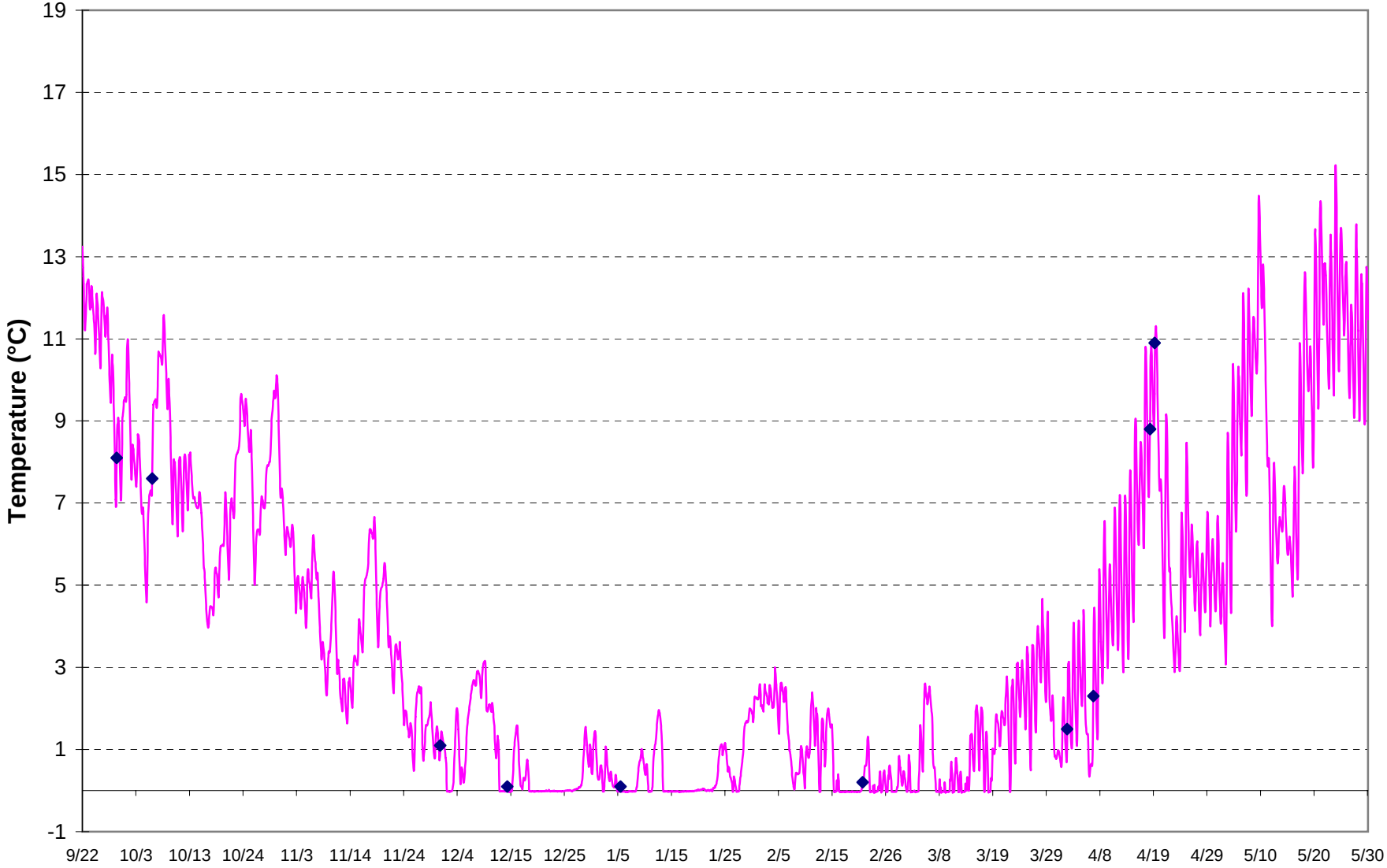
STRM004 Mean Daily SpC USGS Comparison: Plot

Appendix H
Quality Control Report
Mean Daily Specific Conductance at Yellow Dog River Monitoring Location YDRM002
Compared to USGS Station 04043275
December 2004 - May 2005
Eagle Project



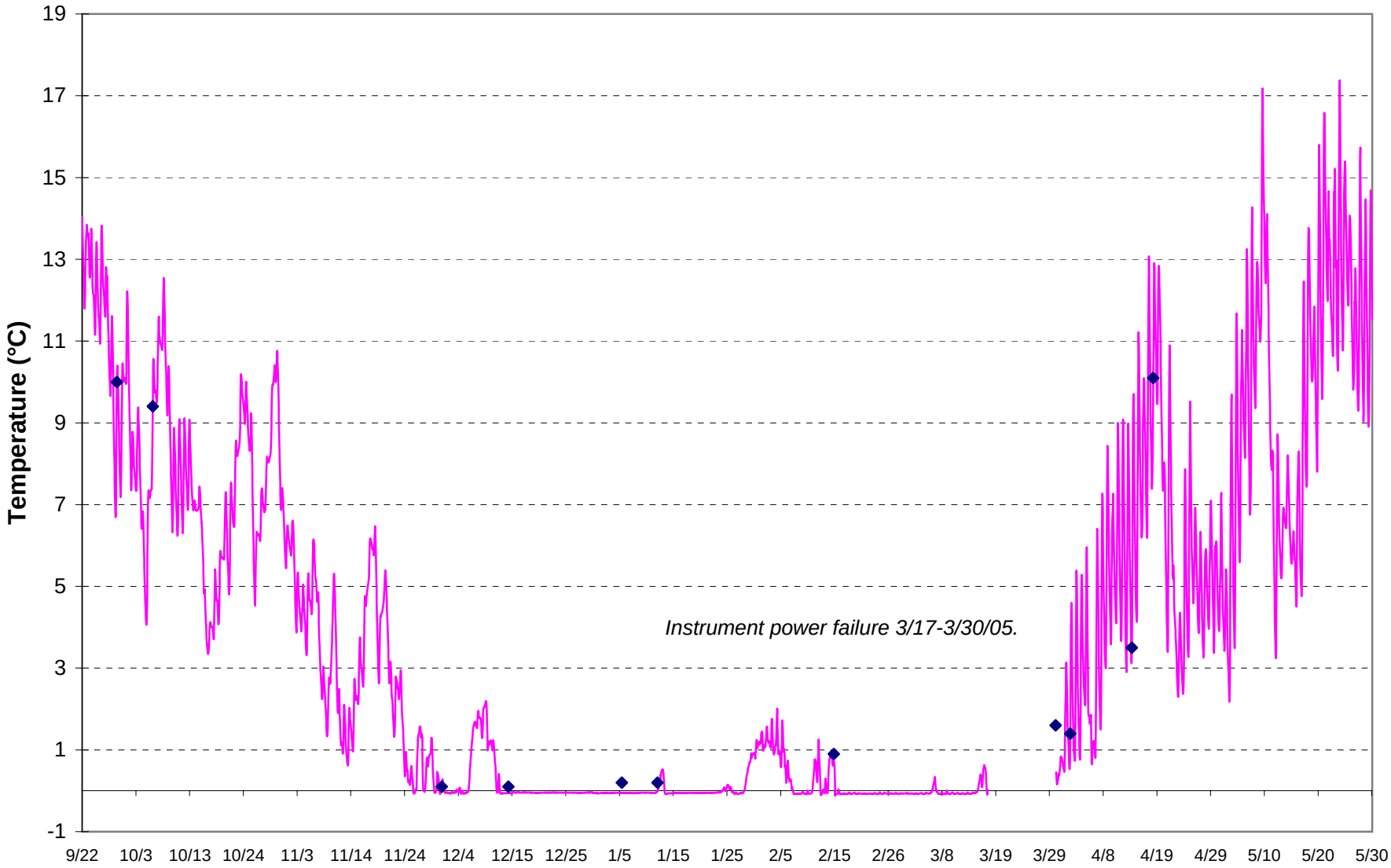
YDRM002 Mean Daily SpC USGS Comparison: Plot

Appendix H
Quality Control Report
Hourly Surface Water Temperature Data with Discrete Measurements
Salmon Trout River Monitoring Location STRE002
September 2004 - May 2005
Eagle Project



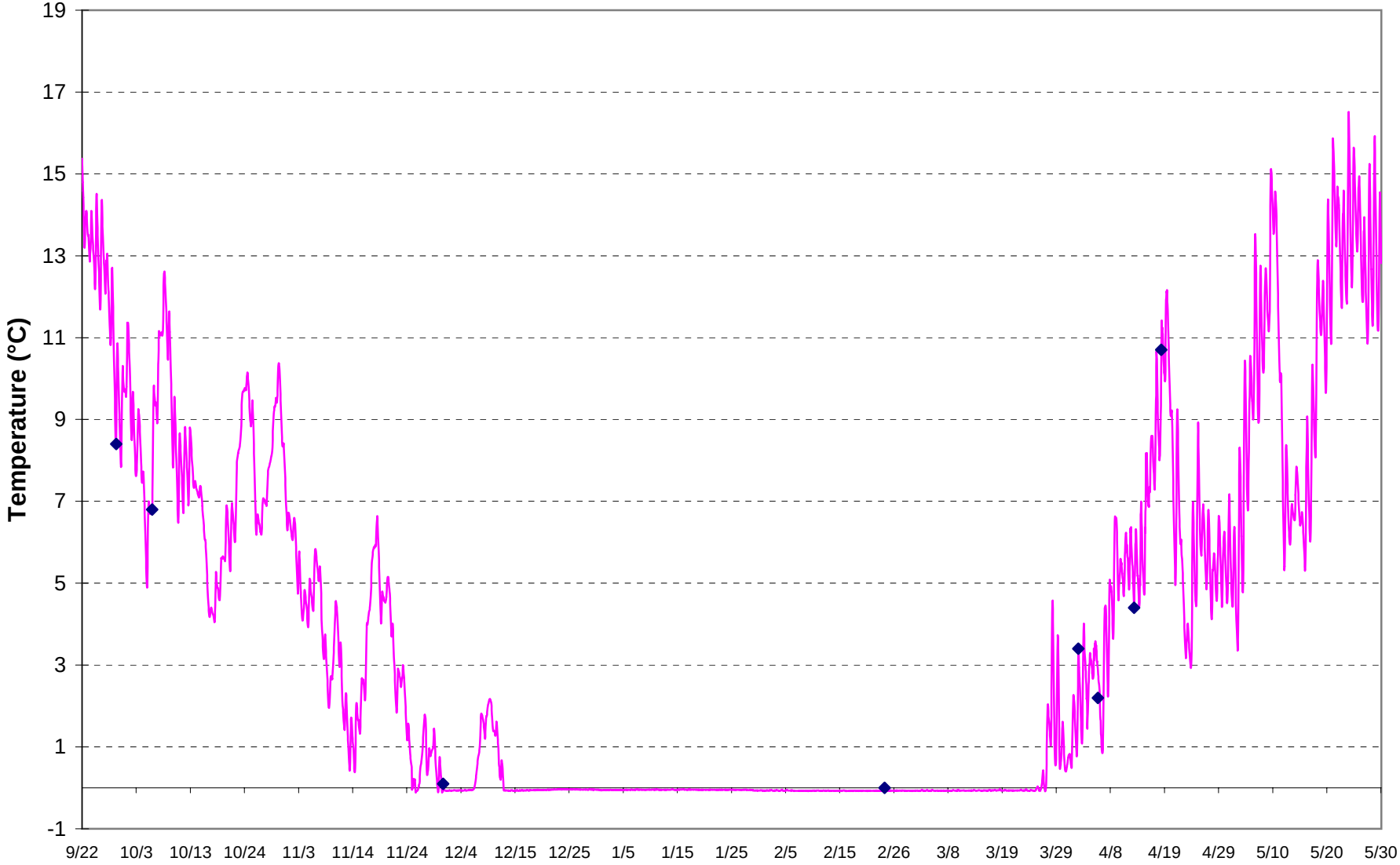
Hourly Temp with Discrete: STRE002

Appendix H
Quality Control Report
Hourly Surface Water Temperature Data with Discrete Measurements
Salmon Trout River Monitoring Location STRM004
September 2004 - May 2005
Eagle Project



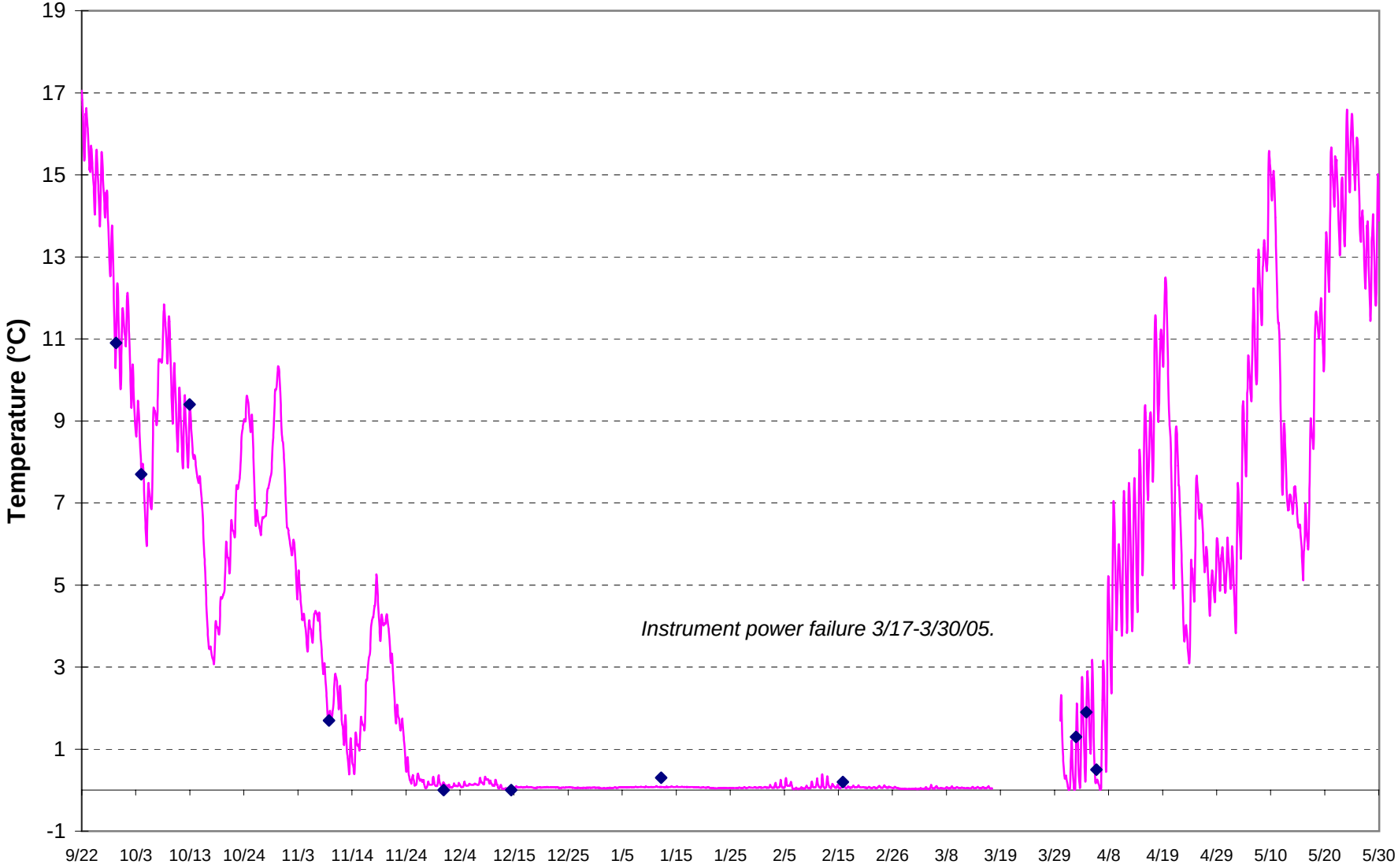
Hourly Temp with Discrete: STRM004

Appendix H
Quality Control Report
Hourly Surface Water Temperature Data with Discrete Measurements
Salmon Trout River Monitoring Location STRM005
September 2004 - May 2005
Eagle Project



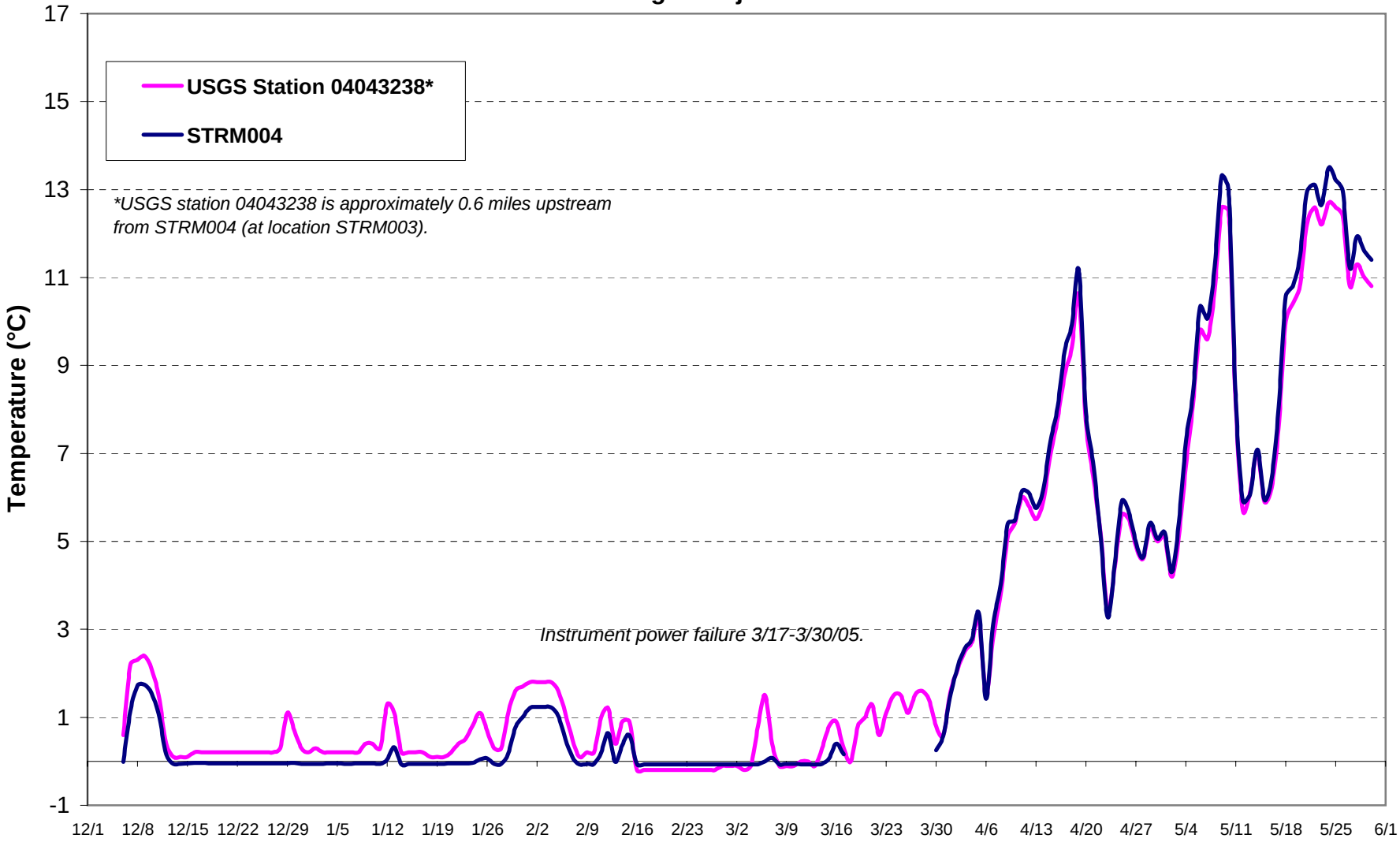
Hourly Temp with Discrete: STRM005

Appendix H
Quality Control Report
Hourly Surface Water Temperature Data with Discrete Measurements
Yellow Dog River Monitoring Location YDRM002
September 2004 - May 2005
Eagle Project



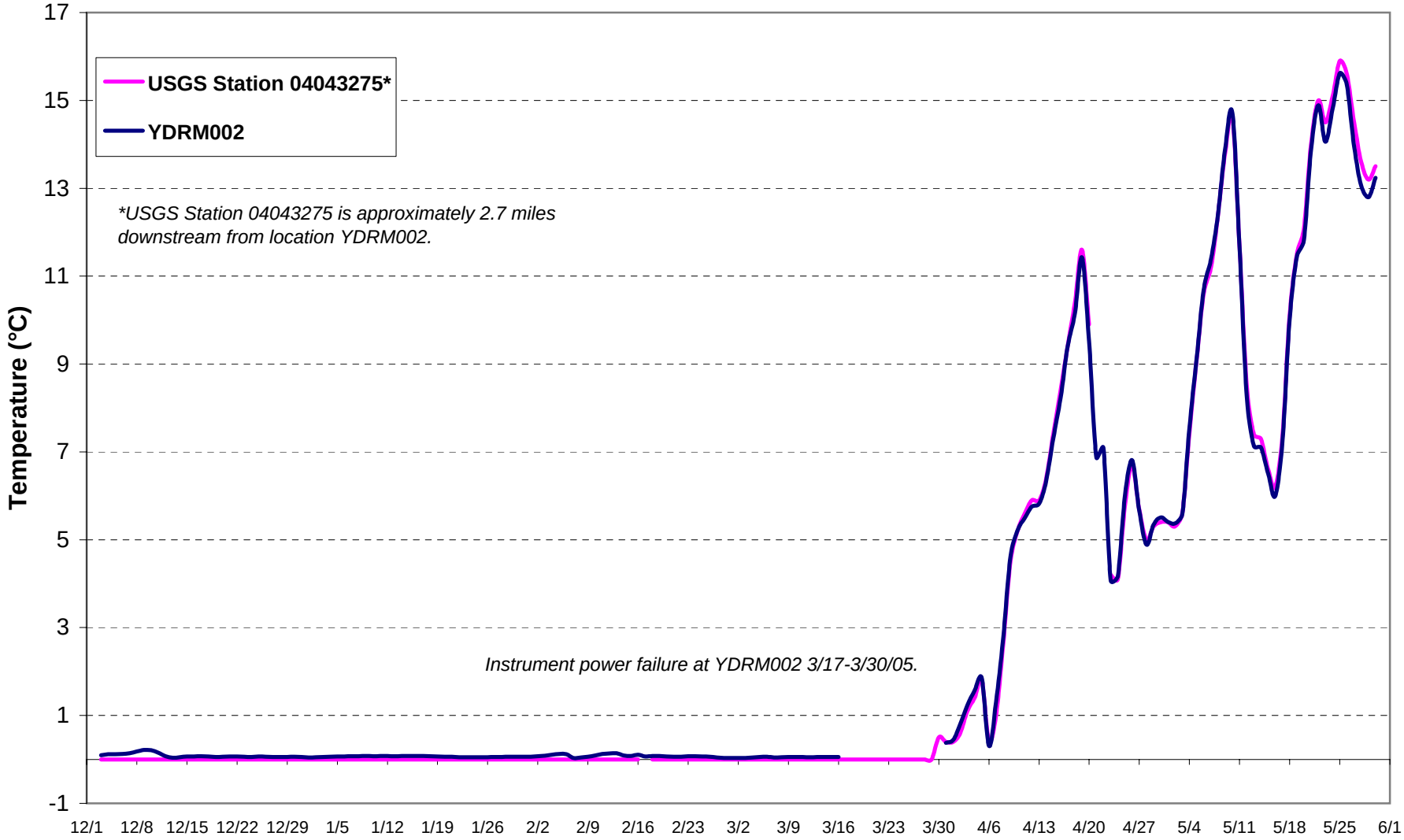
Hourly Temp with Discrete: YDRM002

Appendix H
Quality Control Report
Mean Daily Temperature at Salmon Trout River Monitoring Location STRM004
Compared to USGS Station 04043238
December 2004 - May 2005
Eagle Project



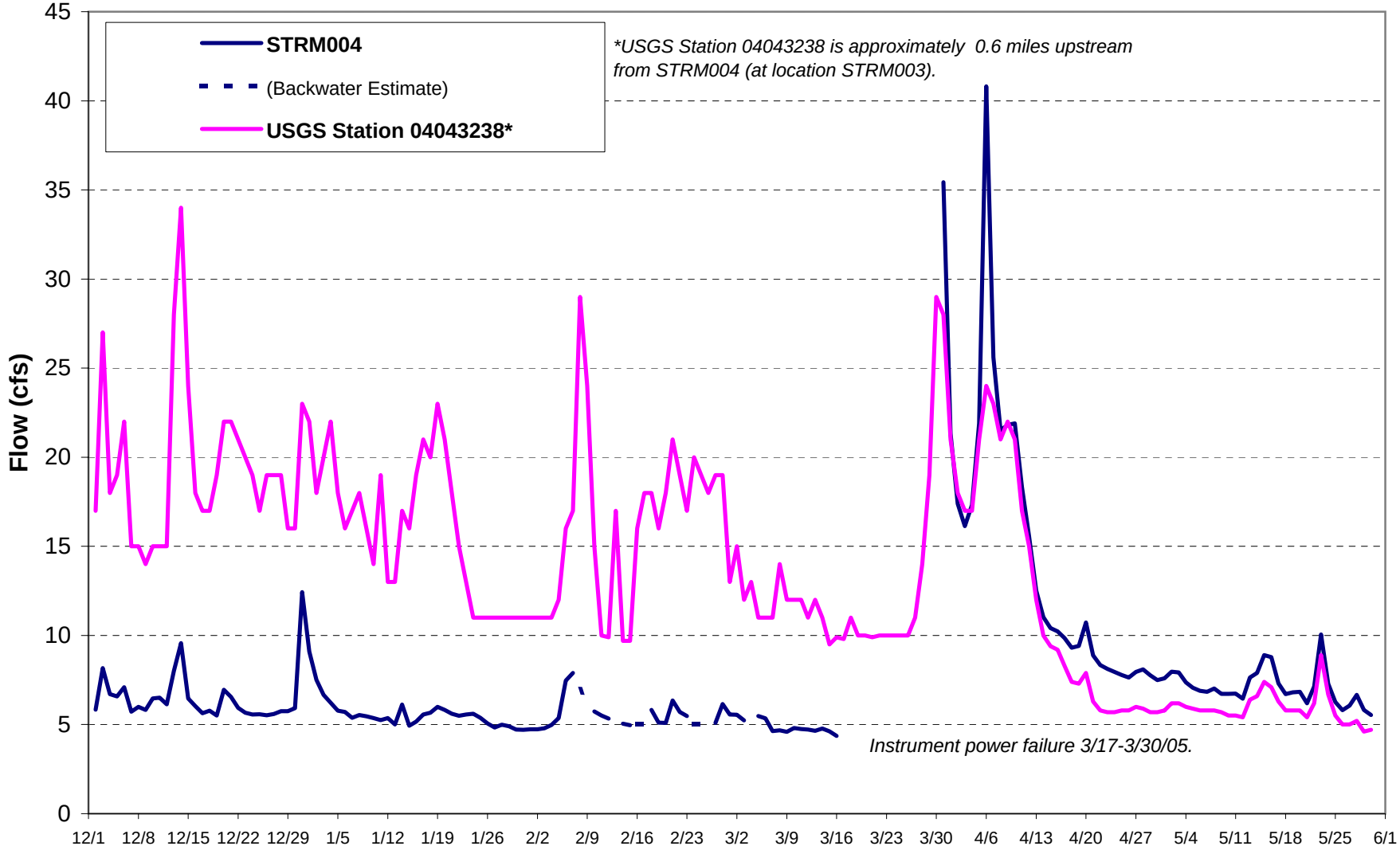
STRM004 Mean Daily Temp USGS Comparison: Plot

Appendix H
Quality Control Report
Mean Daily Temperature at Continuous Yellow Dog River Monitoring Location YDRM002
Compared to USGS Station 04043275
December 2004 - May 2005
Eagle Project



YDRM002 Mean Daily Temp USGS Comparison: Plot

Appendix H
Quality Control Report
Mean Daily Flow at Salmon Trout River Monitoring Location STRM004
Compared to USGS Station 04043238
December 2004 - May 2005
Eagle Project



STRM004 Mean Daily Flow USGS Comparison: Plot