HYDE PARK COLLECTION AND AQUEOUS PHASE LEACHATE (APL) TREATMENT SYSTEM CONTROLS MANUAL

May 7, 2001

Table of Contents

Conestoga-Rovers & Associates

2055 Niagara Falls Boulevard
Niagara Falls, New York 14304

Office: (716) 297-6150
Fax: (716) 297-2265

AUGUST 2000
REF. NO. 12553 (5)
This report is printed on recycled paper.

SECTION A: SEQUENCES

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQ	*Description*	*P&ID REF* A-1069-00 shts.
A	Shutdown Well Pumps to Decanter No. 1 (HP-03)	1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14A, 14B, 15, 16, 17, 18, 27
B	Shutdown Well Pumps to Decanter No. 2 (HP-04)	1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14A, 14B, 15, 16, 17, 18, 27
C	Shutdown Well Pumps and Backwash Transfer Pump (P-215) to Decanter No. 3 (HP-05)	1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14A, 14B, 15, 16, 17, 18, 23, 27
D	Shutdown APWs to Leachate Storage Tanks (HP-01, HP-02, HP-11, HP-12, HP-13)	13, 14, 16, 17, 18, 27
E	Isolate Leachate Storage Tanks from Equalization Line (HP-01, HP-02, HP-11, HP-12, HP-13)	16, 17, 18, 21, 23, 24, 26, 27
F	Shutdown Leachate Feed Pumps (P-224, P-264)	18, 23, 26, 27
G	Shutdown Treatment Plant	18, 21, 23, 24, 26, 27
H	Stop Effluent Discharge to City Sewer	23
I	Shutdown Pumps to Backwash Tank (HP-08)	19, 20, 23
J	Shutdown Storage Dike Sump Pump (P-375)	15, 16, 17, 18, 26
K	Shutdown Decanter Dike Sump Pump (P-134)	15, 16, 17, 18, 27
L	North Forcemain Leak Detection Shutdown	1, 2, 6, 12, 13, 14
M	South Forcemain Leak Detection Shutdown	1, 3, 4, 5, 6, 7, 8, 9, 10, 11
N	2001 Forcemain Leak Detection	14A, 14B

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE A **REVISION No: 0** **August 28, 2000**

SHUTDOWN WELL PUMPS TO DECANTER NO. 1 (HP-03)

Reference: P&ID Drawings A-1069-00-01, 03, 04, 06, 07, 08, 09, 10, 11, 12, 14A, 14B, 15, 16, 17, 18, 27

Purpose: To prevent water flow to Decanter No. 1.

The following control actions will take place:

- The pump motor in NAPL Purge Well "7U" (P-234) will be inhibited from running. OY-234-B will be forced to off.
- The pump motor in NAPL Purge Well "1U" (P-111A) will be inhibited from running. OY-111A-B will be forced to off.
- The pump motor in NAPL Purge Well "1L" (P-113A) will be inhibited from running. OY-113A-B will be forced to off.
- The pump motor in NAPL Purge Well "2L" (P-116) will be inhibited from running. OY-116A-B will be forced to off.
- The pump motor in NAPL Purge Well "2M" (P-115) will be inhibited from running. OY-115A-B will be forced to off.
- The pump motor in NAPL Purge Well "3L" (P-123) will be inhibited from running. OY-123A-B will be forced to off.
- The pump motor in NAPL Purge Well "3M" (P-122) will be inhibited from running. OY-122A-B will be forced to off.
- The pump motor in NAPL Purge Well "4M" (P-124) will be inhibited from running. OY-124A-B will be forced to off.
- The pump motor in NAPL Purge Well "4U" (P-112) will be inhibited from running. OY-112A-B will be forced to off.
- The pump motor in NAPL Purge Well "6MR" (P-152B) will be inhibited from running.
  OY-152B-B will be forced to off.
- The pump motor in NAPL Purge Well "6UR" (P-152A) will be inhibited from running.
  OY-152A-B will be forced to off.
- The pump motor in NAPL Purge Well "5UR" (P-125) will be inhibited from running. OY-125A-B will be forced to off.
- The pump motor in NAPL Purge Well "2UR" (P-114) will be inhibited from running. OY-114A-B will be forced to off.
- Sequence B is tripped – Shutdown Well Pumps to Decanter No. 2 (HP-04).
- Sequence C is tripped – Shutdown Well Pumps to Decanter No. 3 (HP-05).
- SEQ-A alarms

SEQUENCE SUMMARY FOR HYDE PARK SITE

When any of the conditions listed below occur:

- Level in Decanter No. 1 (HP-03) is above 80% for 15 seconds.
  LAHH-101 will alarm.
- Level in Decanter No. 1 (HP-03) is above high-high limit switch for 15 seconds.
  LAHH-102 will alarm.
- Level in Decanter No. 2 (HP-04) is above 80% for 15 seconds.
  LAHH-103 will alarm.
- Level in Decanter No. 2 (HP-04) is above high-high limit switch for 15 seconds.
  LAHH-104 will alarm.
- Level in Decanter No. 3 (HP-05) is above 80% for 15 seconds.
  LAHH-105 will alarm.
- Level in Decanter No. 3 (HP-05) is above high-high limit switch for 15 seconds.
  LAHH-106 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 90% for 15 seconds.
  LAHH-107 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above high-high limit switch for 15 seconds.
  LAHH-108 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 80% for 15 seconds.
  LAH-107 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 90% for 15 seconds.
  LAHH-109 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above high-high limit switch for 15 seconds.
  LAHH-110 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 80% for 15 seconds.
  LAH-109 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 90% for 15 seconds.
  LAHH-810 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above high-high limit switch for 15 seconds.
  LAHH-811 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 80%.
  LAH-810 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 90% for 15 seconds.
  LAHH-820 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above high-high limit switch for 15 seconds.
  LAHH-821 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 80%.
  LAH-820 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 90% for 15 seconds.
  LAHH-830 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above high-high limit switch for 15 seconds.

LAHH-831 will alarm.

- Level in Leachate Storage Tank No. 5 (HP-13) is above 80%.
  LAH-830 will alarm.
- Level in Decanter Dike Sump is above high-high limit switch for 15 seconds.
  LAHH-111 will alarm.
- Level in Decanter Dike Sump is above high-high level float switch for 15 seconds.
  LAHH-112 will alarm.
- Level in Storage Dike Sump is above high-high limit switch for 15 seconds.
  LAHH-813 will alarm.
- Level in Storage Dike Sump is above high-high level float switch for 15 seconds.
  LAHH-814 will alarm
- Leachate Storage Tank No. 1 (HP-01) or No. 2 (HP-02) is deselected from the HMI.
- Sequence B is tripped – Shutdown Well Pumps to Decanter No. 2 (HP-04).
- Sequence C is tripped – Shutdown Well Pumps to Decanter No. 3 (HP-05).
- Bad sensor quality LT-101, LT-103, LT-105, LT-107, LT-109, LT-810, LT-820, LT-830.
  BQ-SEQ-A will alarm.

After ALL conditions below occur:

- Level in Decanter No. 1 (HP-03) is below 80%.
  LAHH-101 will clear.
- Level in Decanter No. 1 (HP-03) is below high-high limit switch.
  LAHH-102 will clear.
- Level in Decanter No. 2 (HP-04) is below 80%.
  LAHH-103 will clear.
- Level in Decanter No. 2 (HP-04) is below high-high limit switch.
  LAHH-104 will clear.
- Level in Decanter No. 3 (HP-05) is below 80%.
  LAHH-105 will clear.
- Level in Decanter No. 3 (HP-05) is below high-high limit switch.
  LAHH-106 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below 80%.
  LAH-107 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below high-high limit switch.
  LAHH-108 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below 80%.
  LAH-109 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below high-high limit switch.
  LAHH-110 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below 80%.
  LAH-810 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below high-high limit switch.
  LAHH-811 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below 80%.
  LAH-820 will clear.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Level in Leachate Storage Tank No. 4 (HP-12) is below high-high limit switch. LAHH-821 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below 80%. LAH-830 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below high-high limit switch. LAHH-831 will clear.
- Level in Decanter Dike Sump is below high-high limit switch. LAHH-111 will clear.
- Level in Decanter Dike Sump is below high-high level float switch. LAHH-112 will clear.
- Level in Storage Dike Sump is below high-high limit switch. LAHH-813 will clear.
- Level in Storage Dike Sump is below high-high level float switch. LAHH-814 will clear.
- Leachate Storage Tanks No. 1 (HP-01) and No. 2 (HP-02) are both selected at the HMI.
- Sequence B clears.
- Sequence C clears.
- BQ-SEQ-A clears.

Then ....

- The Well Pumps feeding Decanter No. 1 (HP-03) will be enabled for normal operation.
- SEQ-A clears.

The operator may ….

- Place the well pumps in Auto or Manual operation at the pumps.
- Manual operation will override all sequences.
- Individual alarms may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE B **REVISION No: 0** **August 28, 2000**

SHUTDOWN WELL PUMPS TO DECANTER NO. 2 (HP-04)

Reference: P&ID Drawings A-1069-00-01, 03, 04, 06, 07, 08, 09, 10, 11, 12, 14A, 14B, 15, 16, 17, 18, 27

Purpose: To prevent water flow to Decanter No. 2. (HP-04).

The following control actions will take place:

- The pump motor in Wet Well "A" (P-113) will be inhibited from running. OY-113 will be forced to off.
- The pump motor in Wet Well "C" (P-101) will be inhibited from running. OY-101A will be forced to off.
- The pump motor in Wet Well "D" (P-102) will be inhibited from running. OY-102A will be forced to off.
- Sequence A is tripped – Shutdown Well Pumps to Decanter No. 1 (HP-03).
- Sequence C is tripped – Shutdown Well Pumps to Decanter No. 3 (HP-05).
- SEQ-B alarms.

When any of the conditions listed below occur:

- Level in Decanter No. 1 (HP-03) is above 80% for 15 seconds. LAHH-101 will alarm.
- Level in Decanter No. 1 (HP-03) is above high-high limit switch for 15 seconds. LAHH-102 will alarm.
- Level in Decanter No. 2 (HP-04) is above 80% for 15 seconds. LAHH-103 will alarm.
- Level in Decanter No. 2 (HP-04) is above high-high limit switch for 15 seconds. LAHH-104 will alarm.
- Level in Decanter No. 3 (HP-05) is above 80% for 15 seconds. LAHH-105 will alarm.
- Level in Decanter No. 3 (HP-05) is above high-high limit switch for 15 seconds. LAHH-106 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 90% for 15 seconds. LAHH-107 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above high-high limit switch for 15 seconds. LAHH-108 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 80% for 15 seconds. LAH-107 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 90% for 15 seconds. LAHH-109 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above high-high limit switch for 15 seconds. LAHH-110 will alarm.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Level in Leachate Storage Tank No. 2 (HP-02) is above 80% for 15 seconds.
  LAH-109 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 90% for 15 seconds.
  LAHH-810 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above high-high limit switch for 15 seconds.
  LAHH-811 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 80%.
  LAH-810 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 90% for 15 seconds.
  LAHH-820 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above high-high limit switch for 15 seconds.
  LAHH-821 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 80%.
  LAH-820 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 90% for 15 seconds.
  LAHH-830 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above high-high limit switch for 15 seconds.
  LAHH-831 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 80%.
  LAH-830 will alarm.
- Level in Decanter Dike Sump is above high-high limit for 15 seconds.
  LAHH-111 will alarm.
- Level in Decanter Dike Sump is above high-high level float switch for 15 seconds.
  LAHH-112 will alarm.
- Level in Storage Dike Sump is above high-high limit switch for 15 seconds.
  LAHH-813 will alarm.
- Level in Storage Dike Sump is above high-high level float switch for 15 seconds.
  LAHH-814 will alarm.
- Leachate Storage Tank No. 1 (HP-01) or No. 2 (HP-02) is deselected from the HMI.
- Sequence A is tripped – Shutdown Well Pumps to Decanter No. 1 (HP-03).
- Sequence C is tripped – Shutdown Well Pumps to Decanter No. 3 (HP-05).
- Bad sensor quality LT-101, LT-103, LT-105, LT-107, LT-109, LT-810, LT-820, LT-830.
  BQ-SEQ-B will alarm.

After ALL conditions below occur:

- Level in Decanter No. 1 (HP-03) is below 80%.
  LAHH-101 will clear.
- Level in Decanter No. 1 (HP-03) is below high-high limit switch.
  LAHH-102 will clear.
- Level in Decanter No. 2 (HP-04) is below 80%.
  LAHH-103 will clear.
- Level in Decanter No. 2 (HP-04) is below high-high limit switch.
  LAHH-104 will clear.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Level in Decanter No. 3 (HP-05) is below 80%.
  LAHH-105 will clear.
- Level in Decanter No. 3 (HP-05) is below high-high limit switch.
  LAHH-106 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below 80%.
  LAH-107 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below high-high limit switch.
  LAHH-108 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below 80%.
  LAH-109 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below high-high limit switch.
  LAHH-110 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below 80%.
  LAH-810 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below high-high limit switch.
  LAHH-811 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below 80%.
  LAH-820 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below high-high limit switch.
  LAHH-821 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below 80%.
  LAH-830 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below high-high limit switch.
  LAHH-831 will clear.
- Level in Decanter Dike Sump is below high-high limit.
  LAHH-111 will clear.
- Level in Decanter Dike Sump is below high-high level float switch.
  LAHH-112 will clear.
- Level in Storage Dike Sump is below high-high limit switch.
  LAHH-813 will clear.
- Level in Storage Dike Sump is below high-high level float switch.
  LAHH-814 will clear.
- Leachate Storage Tanks No. 1 (HP-01) and No. 2 (HP-02) are selected at the HMI.
- Sequence A clears.
- Sequence C clears.
- BQ-SEQ-B clears.

Then ....

- The Well Pumps feeding Decanter No. 2 (HP-04) will be enabled for normal operation.
- SEQ-B clears.

The operator may ....

- Place the well pumps in Auto or Manual operation at the pumps.
- Manual operation will override all sequences.
- Individual alarms may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE C **REVISION No: 0** **August 28, 2000**

SHUTDOWN WELL PUMPS AND BACKWASH TRANSFER PUMP (P-215) TO DECANTER NO. 3 (HP-05)

Reference: P&ID Drawings A-1069-00-01, 03, 04, 06, 07, 08, 09, 10, 11, 12, 14A, 14B, 15, 16, 17, 18, 27

Purpose: To prevent water flow to Decanter No. 3 (HP-05).

The following control actions will take place:

- The pump motor in Source Control Purge Well "SC2" (P-104) will be inhibited from running.
  OY-104A-B will be forced to off.
- The pump motor in Source Control Purge Well "SC3" (P-143) will be inhibited from running.
  OY-143A-B will be forced to off.
- The pump motor in Source Control Purge Well "SC4" (P-144) will be inhibited from running.
  OY-144A-B will be forced to off.
- The pump motor in Source Control Purge Well "SC5" (P-145) will be inhibited from running.
  OY-145A-B will be forced to off.
- The pump motor in Source Control Purge Well "SC6" (P-146) will be inhibited from running.
  OY-146A-B will be forced to off.
- The pump motor in NAPL Purge Well “8U” (P-161LC) will be inhibited from running.
  OY-161LC will be forced to off.
- The pump motor in NAPL Purge Well “8M” (PW-211) will be inhibited from running.
  OY-211 will be forced to off.
- The pump motor in NAPL Purge Well “9U” (P-161LB) will be inhibited from running.
  OY-161LB will be forced to off.
- The pump motor in NAPL Purge Well “10U” (P-161LA) will be inhibited from running.
  OY-161LA will be forced to off.
- The Backwash Transfer Pump (P-215) will be inhibited from running.
  OY-215 will be forced to off.
- Sequence A will be tripped – Shutdown Well Pumps to Decanter No. 1 (HP-03).
- Sequence B will be tripped – Shutdown Well Pumps to Decanter No. 2 (HP-04).
- SEQ-C alarms.

SEQUENCE SUMMARY FOR HYDE PARK SITE

When any of the conditions listed below occur:

- Level in Decanter No. 1 (HP-03) is above 80% for 15 seconds.
  LAHH-101 will alarm.
- Level in Decanter No. 1 (HP-03) is above high-high limit switch for 15 seconds.
  LAHH-102 will alarm.
- Level in Decanter No. 2 (HP-04) is above 80% for 15 seconds.
  LAHH-103 will alarm.
- Level in Decanter No. 2 (HP-04) is above high-high limit switch for 15 seconds.
  LAHH-104 will alarm.
- Level in Decanter No. 3 (HP-05) is above 80% for 15 seconds.
  LAHH-105 will alarm.
- Level in Decanter No. 3 (HP-05) is above high-high limit switch for 15 seconds.
  LAHH-106 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 90% for 15 seconds.
  LAHH-107 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above high-high limit switch for 15 seconds.
  LAHH-108 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 80% for 15 seconds.
  LAH-107 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 90% for 15 seconds.
  LAHH-109 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above high-high limit switch for 15 seconds.
  LAHH-110 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 80% for 15 seconds.
  LAH-109 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 90% for 15 seconds.
  LAHH-810 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above high-high limit switch for 15 seconds.
  LAHH-811 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 80%.
  LAH-810 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 90% for 15 seconds.
  LAHH-820 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above high-high limit switch for 15 seconds.
  LAHH-821 will alarm.
- Level in Leachate storage Tank No. 4 (HP-12) is above 80%.
  LAH-820 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 90% for 15 seconds.
  LAHH-830 will alarm.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Level in Leachate Storage Tank No. 5 (HP-13) is above high-high limit switch for 15 seconds.
  LAHH-831 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 80%.
  LAH-830 will alarm.
- Level in Decanter Dike Sump is above high-high limit for 15 seconds.
  LAHH-111 will alarm.
- Level in Decanter Dike Sump is above high-high level float switch for 15 seconds.
  LAHH-112 will alarm.
- Level in Storage Dike Sump is above high-high limit switch for 15 seconds.
  LAHH-813 will alarm.
- Level in Storage Dike Sump is above high-high level float switch for 15 seconds.
  LAHH-814 will alarm.
- Leachate Storage Tank No. 1 (HP-01) or No. 2 (HP-02) is deselected from the HMI.
- Sequence A is tripped – Shutdown Well Pumps to Decanter No. 1 (HP-03).
- Sequence B is tripped – Shutdown Well Pumps to Decanter No. 2 (HP-04).
- Bad sensor quality LT-101, LT-103, LT-105, LT-107, LT-109, LT-810, LT-820, LT-830.
  BQ-SEQ-C will alarm.

After ALL conditions below occur:

- Level in Decanter No. 1 (HP-03) is below 80%.
  LAHH-101 will clear.
- Level in Decanter No. 1 (HP-03) is below high-high limit switch.
  LAHH-102 will clear.
- Level in Decanter No. 2 (HP-04) is below 80%.
  LAHH-103 will clear.
- Level in Decanter No. 2 (HP-04) is below high-high limit switch.
  LAHH-104 will clear.
- Level in Decanter No. 3 (HP-05) is below 80%.
  LAHH-105 will clear.
- Level in Decanter No. 3 (HP-05) is below high-high limit switch.
  LAHH-106 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below 80%.
  LAH-107 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below high-high limit switch.
  LAHH-108 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below 80%.
  LAH-109 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below high-high limit switch.
  LAHH-110 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below 80%.
  LAH-810 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below high-high limit switch.
  LAHH-811 will clear.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Level in Leachate Storage Tank No. 4 (HP-12) is below 80%.
  LAH-820 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below high-high limit switch.
  LAHH-821 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below 80%.
  LAH-830 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below high-high limit switch.
  LAHH-831 will clear.
- Level in Decanter Dike Sump is below high-high limit.
  LAHH-111 will clear.
- Level in Decanter Dike Sump is below high-high level float switch.
  LAHH-112 will clear.
- Level in Storage Dike Sump is below high-high limit switch.
  LAHH-813 will clear.
- Level in Storage Dike Sump is below high-high level float switch.
  LAHH-814 will clear.
- Leachate Storage Tanks No. 1 (HP-01) and No. 2 (HP-02) are selected at the HMI.
- Sequence A clears.
- Sequence B clears.
- BQ-SEQ-C clears.

Then ....

- The Well Pumps feeding Decanter No. 3 (HP-05) will be enabled for normal operation
- SEQ-C clears

The operator may ….

- Place the well pumps in Auto or Manual operation at the pumps.
- Manual operation will override all sequences.
- Individual alarms may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE D **REVISION No: 0** **August 28, 2000**

SHUTDOWN APL WELL PUMPS (APWs) TO LEACHATE STORAGE TANKS (HP-01, HP-02, HP-11, HP-12, HP-13)

Reference: P&ID Drawings A-1069-00-13, 14, 16, 17, 18, 27

Purpose: To prevent APWs (P-11B, P-12B, P-) from running.

The following control actions will take place:

- The pump motor in APL Purge Well "APW1" (P-11) will be inhibited from running. OY-11A-B will be forced to off.
- The pump motor in APL Purge Well "APW2" (P-12) will be inhibited from running. OY-12A-B will be forced to off.
- The pump motor in APL Purge Well "APW3" (P-13) will be inhibited from running. OY-13A-B will be forced to off.
- SEQ-D alarms.

When any of the conditions listed below occur:

- Level in Leachate Storage Tank No. 1 (HP-01) is above 90% for 15 seconds.
  LAHH-107 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above high-high limit switch for 15 seconds.
  LAHH-108 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 80% for 15 seconds.
  LAH-107 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 90% for 15 seconds.
  LAHH-109 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above high-high limit switch for 15 seconds.
  LAHH-110 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 80% for 15 seconds.
  LAH-109 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 90% for 15 seconds.
  LAHH-810 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above high-high limit switch for 15 seconds.
  LAHH-811 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 80%.
  LAH-810 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 90% for 15 seconds.
  LAHH-820 will alarm.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Level in Leachate Storage Tank No. 4 (HP-12) is above high-high limit switch for 15 seconds.
  LAHH-821 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 80%.
  LAH-820 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 90% for 15 seconds.
  LAHH-830 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above high-high limit switch for 15 seconds.
  LAHH-831 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 80%.
  LAH-830 will alarm.
- Level in Decanter Dike Sump is above high-high limit for 15 seconds.
  LAHH-111 will alarm.
- Level in Decanter Dike Sump is above high-high level float switch for 15 seconds.
  LAHH-112 will alarm.
- Level in Storage Dike Sump is above high-high limit switch for 15 seconds.
  LAHH-813 will alarm.
- Level in Storage Dike Sump is above high-high level float switch for 15 seconds.
  LAHH-814 will alarm.
- Leachate Storage Tank No. 1 (HP-01) or No. 2 (HP-02) is not selected at the HMI.
- Seq M is tripped – South Forcemain Leak Detection Shutdown.
  - A leak is detected in WW D, LAH-361 will alarm.
  - A leak is detected in PW-2L, LAH-310 will alarm.
  - A leak is detected in PW-2M, LAH-320 will alarm.
  - A leak is detected in PW-2UR, LAH-315 will alarm.
  - A leak is detected in PW-3L, LAH-295 will alarm.
  - A leak is detected in PW-3M, LAH-305 will alarm.
  - A leak is detected in PW-3UM, LAH-307 will alarm.
  - A leak is detected in PW-4U, LAH-338 will alarm.
  - A leak is detected in PW-4M, LAH-285 will alarm.
  - A leak is detected in PW-5UR, LAH-280 will alarm.
  - A leak is detected in PW-6MR, LAH-160 will alarm.
  - A leak is detected in PW-6UMR, LAH-290 will alarm.
  - A leak is detected in PW-6UMR, LAH-150 will alarm.
  - A leak is detected in PW-6UMR, LAH-156 will alarm.
  - A leak is detected in PW-6UR, LAH-154 will alarm.
  - A leak is detected in MH-40, LAH-140 will alarm.
  - A leak is detected in MH-41, LAH-141 will alarm.
  - A leak is detected in MH-42, LAH-142 will alarm.
  - A leak is detected in MH-43, LAH-143 will alarm.
  - A leak is detected in MH-44, LAH-144 will alarm.
  - A leak is detected in MH-45, LAH-145 will alarm.
  - A leak is detected in MH-46, LAH-146 will alarm.
  - A leak is detected in MH-47, LAH-147 will alarm.
  - A leak is detected in MH-48, LAH-148 will alarm.

- ♦ A leak is detected in MH-49, LAH-149 will alarm.
- ♦ A leak is detected in MH-50, LAH-501 will alarm.
- ♦ A leak is detected in MH-56, LAH-511 will alarm.
- ♦ A leak is detected in MH-56, LAH-512 will alarm.
- ♦ A leak is detected in MH-57, LAH-521 will alarm.
- ♦ A leak is detected in MH-57, LAH-522 will alarm.
- ♦ A leak is detected in MH-57, LAH-523 will alarm.
- ♦ A leak is detected in MH-57, LAH-524 will alarm.

- Bad sensor quality LT-107, LT-109, LT-810, LT-820, LT-830.
  BQ-SEQ-D will alarm.

After ALL conditions below occur:

- Level in Leachate Storage Tank No. 1 (HP-01) is below 80%.
  LAH-107 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below high-high limit switch.
  LAHH-108 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below 80%.
  LAH-109 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below high-high limit switch.
  LAHH-110 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below 80%.
  LAH-810 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below high-high limit switch.
  LAHH-811 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below 80%.
  LAH-820 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below high-high limit switch.
  LAHH-821 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is below 80%.
  LAH-830 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below high-high limit switch.
  LAHH-831 will clear.
- Level in Decanter Dike Sump is below high-high limit.
  LAHH-111 will clear.
- Level in Decanter Dike Sump is below high-high level float switch.
  LAHH-112 will clear.
- Level in Storage Dike Sump is below high-high limit switch.
  LAHH-813 will clear.
- Level in Storage Dike Sump is below high-high level float switch.
  LAHH-814 will clear.
- Leachate Storage Tanks No. 1 (HP-01) and No. 2 (HP-02) are selected at the HMI.
- Seq M clears.
- BQ-SEQ-D clears.

SEQUENCE SUMMARY FOR HYDE PARK SITE

Then ....

- The APWs will be enabled for normal operation.
- SEQ-D clears.

The operator may ….

- Place the well pumps in Auto or Manual operation at the pumps.
- Manual operation will override all sequences.
- Individual alarms may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE E **REVISION No: 0** **August 28, 2000**

ISOLATE LEACHATE STORAGE TANKS FROM THE EQUALIZATION LINE (HP-01, HP-02, HP-11, HP-12, HP-13)

Reference: P&ID Drawings A-1069-00-16, 17, 18, 22, 23, 24, 27

Purpose: To stop transfer of water between Leachate Storage Tanks (HP-01, HP-02, HP-11, HP-12, HP-13).

The following control actions will take place:

- The isolation control valve UV-910 will be forced closed by deactivating UY-910A.
- The isolation control valve UV-920 will be forced closed by deactivating UY-920A.
- The isolation control valve UV-930 will be forced closed by deactivating UY-930A.
- The isolation control valve UV-940 will be forced closed by deactivating UY-940A.
- The isolation control valve UV-950 will be forced closed by deactivating UY-950A.
- The Backwash Transfer Pump (P-215) motor will be inhibited from running. OY-215 will be forced to off.
- Seq F is tripped – Shutdown Leachate Feed Pumps.
- Seq G is tripped – Shutdown Treatment Plant.
- SEQ-E alarms.

When any of the conditions listed below occur:

- Level in Decanter Dike Sump is above high-high limit switch for 15 seconds. LAHH-111 will alarm.
- Level in Decanter Dike Sump is above high-high level float switch for 15 seconds. LAHH-112 will alarm.
- Level in Storage Dike Sump is above high-high limit switch for 15 seconds. LAHH-813 will alarm.
- Level in Storage Dike Sump is above high-high level float switch for 15 seconds. LAHH-814 will alarm.

After ALL conditions below occur:

- Level in Decanter Dike Sump is below high-high limit switch LAHH-112 will clear.
- Level in Decanter Dike Sump is below high-high level float switch. LAHH-113 will clear.
- Level in Storage Dike Sump is below high-high limit switch. LAHH-813 will clear.
- Level in Storage Dike Sump is below high-high level float switch. LAHH-814 will clear.

SEQUENCE SUMMARY FOR HYDE PARK SITE

Then ....

- Leachate Storage Tank Filling is enabled.
- SEQ-E clears.

The operator may ….

- Operate the isolation control valves UV-910, UV-920, UV-930, UV-940, UV-950 from the HMI.
- Initiate the Leachate Storage Tank Fill sequence from the HMI.
- Individual alarms may be bypassed at the HMI.
- Place the Backwash Transfer Pump (P-215) in Auto or Manual operation at the pump.
- Manual operation will override all sequences.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE F **REVISION No: 0** **August 28, 2000**

SHUTDOWN LEACHATE FEED PUMPS (P-224, P-264)

Reference: P&ID Drawings A-1069-00-18

Purpose: To prevent operation of the Leachate Feed Pumps (P-224, P-264).

The following control actions will take place:

- The Leachate Feed Pump No. 1 (P-224) motor will be inhibited from running.
  OY-224 will be forced to off.
- The Leachate Feed Pump No. 2 (P-264) motor will be inhibited from running.
  OY-264 will be forced to off.
- The Peroxide Addition Pump (P-291-1) will be inhibited from running.
  OY-2911 will be forced to off.
- SEQ-F alarms.

When any of the conditions listed below occur:

- FCV-712 closes.
  ZSL-712 will alarm.
- FCV-712 closes to less than 10%.
- Leachate Feed Flow below 190 gpm for 10 seconds.
  FAL-712 will alarm.
- Leachate Feed flow 15% above setpoint for 10 seconds.
  FAH-712 will alarm.
- Sequence G is tripped – Shutdown Treatment Plant.
  - ♦ Level in Process Collection Tank (HP-17) is above operator high-high setpoint for 15 seconds.
    LAHH-801 will alarm.
  - ♦ Level in Process Collection Tank (HP-17) is above high-high level switch.
    LAHH-802 will alarm.
  - ♦ Level in Process Collection Sump is above high-high limit switch for 15 seconds.
    LAHH-803 will alarm.
  - ♦ Level in Process Collection Sump is above high-high level float switch for 15 seconds.
    LAHH-804 will alarm.
  - ♦ Level in Effluent Tank (HP-07) is above 90% for 15 seconds.
    LAHH-807 will alarm.
  - ♦ Level in Effluent Tank (HP-07) is above 80% for 2 seconds.
    LAH-807 will alarm.
  - ♦ Pressure at Sand Filter Inlet is above 95 psi for 15 seconds.
    PAHH-1106 will alarm.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- ♦ Pressure at Sacrificial Bed Inlet is above 85 psi for 15 seconds.
  PAHH-1105 will alarm.
- ♦ Pressure at Main Bed Inlet is above 75 psi for 15 seconds.
  PAHH-553 will alarm.
- ♦ Seq E is tripped – Isolate Leachate Storage Tanks (HP-01, HP-02, HP-11, HP-12, HP-13) from the Equalization Line.
  - ✓ Level in Decanter Dike Sump is above high-high limit switch for 15 seconds.
    LAHH-111 will alarm.
  - ✓ Level in Decanter Dike Sump is above high-high level float switch for 15 seconds.
    LAHH-112 will alarm.
  - ✓ Level in Storage Dike Sump is above high-high limit switch for 15 seconds.
    LAHH-813 will alarm.
  - ✓ Level in Storage Dike Sump is above high-high level float switch for 15 seconds.
    LAHH-814 will alarm.
- ♦ Bad sensor quality PT-1106, PT-1105, PT-553.
  BQ-SEQ-G alarms.

After ALL conditions below occur:

- FCV-712 is not closed.
  ZSL-712 will clear.
- FCV-712 opens to more than 10%.
- Leachate Feed Flow greater than 190 gpm.
  FAL-712 will clear.
- Leachate Feed Flow within 15% of setpoint.
  FAH-712 will clear.
- Seq G clears.

Then ....

- The Leachate Feed pumps (P-224, P-264) will be enabled for normal operation.
- The Peroxide Addition pump (P-291-1) will be enabled for normal operation.
- SEQ-F clears.

The operator may ….

- Place the Leachate Feed pumps (P-224, P-264) in Auto or Manual at the pump.
- Operate the Peroxide Addition pump (P-291-1) manually from the local controls at the pump.
- Manual operation will override all sequences.
- Individual alarms may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE G **REVISION No: 0** **August 28, 2000**

SHUTDOWN TREATMENT PLANT

Reference: P&ID Drawings A-1069-00-18, 19, 21, 22, 23, 24, 26

Purpose: To prevent operation of the Treatment Plant.

The following control actions will take place:

- The Backwash Transfer Pump (P-215) motor will be inhibited from running.
  OY-215 will be forced to off.
- The Settler Electrolyte Feeder (P-703) will be inhibited from running.
  HS-703B will be forced to off.
- The Backwash Pump (P-222) will be inhibited from running.
  OY-222 will be forced to off.
- The Diamond Filter Pump (P-2931) will be inhibited from running.
- The Diamond Backwash Pump (P-2932) will be inhibited from running.
- Sequence F is tripped – Shutdown Leachate Feed Pumps.
- SEQ-G alarms.

When any of the conditions listed below occur:

- Level in Process Collection Tank (HP-17) is above operator high-high setpoint for 15 seconds.
  LAHH-801 will alarm.
- Level in Process Collection Tank (HP-17) is above high-high level switch.
  LAHH-802 will alarm.
- Level in Process Collection Sump is above high-high limit switch for 15 seconds.
  LAHH-803 will alarm.
- Level in Process Collection Sump is above high-high level float switch for 15 seconds.
  LAHH-804 will alarm.
- Level in Filter Press Room Sump is above high-high level float switch for 15 seconds.
  LAHH-167 will alarm.
- Level in Effluent Tank (HP-07) is above 90% for 15 seconds.
  LAHH-807 will alarm.
- Level in Effluent Tank (HP-07) is above 80% for 2 seconds.
  LAH-807 will alarm.
- Pressure at Sand Filter Inlet is above 95 psi for 15 seconds.
  PAHH-1106 will alarm.
- Pressure at Sacrificial Bed Inlet is above 85 psi for 15 seconds.
  PAHH-1105 will alarm.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Pressure at Main Bed Inlet is above 75 psi for 15 seconds.
  PAHH-553 will alarm.
- Seq E is tripped – Isolate Leachate Storage Tanks (HP-01, HP-02, HP-11, HP-12, HP-13) from the Equalization Line.
  - Level in Decanter Dike Sump is above high-high limit switch for 15 seconds.
    LAHH-111 will alarm.
  - Level in Decanter Dike Sump is above high-high level float switch for 15 seconds.
    LAHH-112 will alarm.
  - Level in Storage Dike Sump is above high-high limit switch for 15 seconds.
    LAHH-813 will alarm.
  - Level in Storage Dike Sump is above high-high level float switch for 15 seconds.
    LAHH-814 will alarm.
- Bad sensor quality LT-801, LT-807, PT-1106, PT-1105, PT-553.
  BQ-SEQ-G alarms.

After ALL conditions below occur:

- Level in Process Collection Tank (HP-17) is below operator high-high setpoint.
  LAHH-801 will clear.
- Level in Process Collection Tank (HP-17) is below high-high level switch.
  LAHH-802 will clear.
- Level in Process Collection Sump is below high-high limit switch.
  LAHH-803 will clear.
- Level in Process Collection Sump is below high-high level float switch.
  LAHH-804 will clear.
- Level in Filter Press Room Sump is below high-high level float switch.
  LAHH-167 will clear.
- Level in Effluent Tank (HP-07) is below 80%.
  LAH-807 will clear.
- Pressure at Sand Filter Inlet is below 95 psi.
  PAHH-1106 will clear.
- Pressure at Sacrificial Bed Inlet is below 85 psi.
  PAHH-1105 will clear.
- Pressure at Main Bed Inlet is below 75 psi.
  PAHH-553 will clear.
- Seq E clears.
- BQ-SEQ-G clears.

Then ....

- The Backwash Pump (P-222) will be enabled for normal operation.
- The Solids Handling Pumps (P-703, P-215) will be enabled for normal operation.
- The Backwash Pump (P-2932) will be enabled for normal operation.

- The Diamond Filter Pump (P-2931) will be enabled for normal operation.
- SEQ-G clears.

The operator may ….

- Place the Backwash Pump (P-222) in Auto or Manual at the pump.
- Place the Solids Handling Pumps (P-703, P-215) in Auto or Manual at the pumps.
- Place the Diamond Filter Pump (P-2931) in Auto or Manual operation at the pump.
- Place the Diamond Backwash Pump (P-2932) in Auto or Manual at the pump.
- Manual operation will override all sequences.
- Individual alarms may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE H **REVISION No: 0** **August 28, 2000**

STOP EFFLUENT DISCHARGE TO CITY SEWER

Reference: P&ID Drawings A-1069-00-23

Purpose: To prevent discharge of water to the city sewer.

The following control actions will take place:

- LIC-807 output is forced to 0 percent, mode not changed, setpoint not changed.
- SEQ-H alarms

When any of the conditions listed below occur:

- Total accumulated flow to the sewer has reached allowed maximum for the period (24 hr. total reset each day at 06:45 – 600,000 gals).
  FQAHH-715 will alarm.
- Effluent discharge pH reading is above high-high limit (9.5) for 15 seconds.
  AIT-906-HH will alarm.
- Effluent discharge pH reading is below low-low limit (5.0) for 15 seconds.
  AIT-906-LL will alarm.
- Sewer manhole level is above high-high level switch for 15 seconds.
  LAHH-392 will alarm.
- Bad sensor quality AIT-906, FIT-715.
  BQ-SEQ-H alarms.

After ALL conditions below occur:

- New total flow accumulation period begins.
  FQAHH-715 will clear.
- Effluent discharge pH reading is below high limit (9.5).
  AIT-906-H will clear.
- Effluent discharge pH reading is above low limit (5.0).
  AIT-906-L will clear.
- Sewer manhole level is below high-high level switch.
  LAHH-392 will clear.
- BQ-SEQ-H will clear.

Then ....

- LIC-807 automatically returns to automatic or manual operation.
- SEQ-H clears.

The operator may ….

- Manual operation will NOT override the sequence.
- Individual alarms may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE I **REVISION No: 0** **August 28, 2000**

SHUTDOWN PUMPS TO BACKWASH TANK (HP-08)

Reference: P&ID Drawings A-1069-00-20, 23

Purpose: To prevent water flow to the Backwash Tank (HP-08).

The following control actions will take place:

- The Effluent Pump (P-223) motor will be inhibited from running.
  OY-282 will be forced to off.
- The Backwash Pump (P-222) motor will be inhibited from running.
  OY-222 will be forced to off.
- The Diamond Backwash Pump (P-293-R2) motor will be inhibited from running.
  OY-293-R2 will be forced to off.
- SEQ-I alarms.

When any of the conditions listed below occur:

- Level in the Backwash Tank (HP-08) is above 90% for 15 seconds.
  LAHH-806 will alarm.
- Level in the Backwash Tank (HP-08) is above the high-high limit switch for 15 seconds.
  LAHH-805 will alarm
- Level in Effluent Tank (HP-07) is below 20% for 15 seconds.
  LALL-807 will alarm.
- Bad sensor quality LIT-806, LIT-807.
  BQ-SEQ-I alarms.

After ALL conditions below occur:

- Level in the Backwash Tank (HP-08) falls below 90%.
  LAHH-806 will clear.
- Level in the Backwash Tank (HP-08) falls below the high-high limit switch.
  LAHH-805 will clear.
- Level in the Effluent Tank (HP-07) is above 20%.
  LALL-807 will clear.
- BQ-SEQ-I will clear.

SEQUENCE SUMMARY FOR HYDE PARK SITE

Then ....

- The Effluent Pump (P-223) will be enabled for normal operation.
- The Backwash Pump (P-222) will be enabled for normal operation.
- The Diamond Backwash Pump (P-293-R2) will be enabled for normal operation.
- SEQ-I clears.

The operator may ….

- Place the Effluent Pump (P-223) in Auto or Manual at the pump.
- Place the Backwash Pump (P-222) in Auto or Manual at the pump.
- Place the Diamond Backwash Pump (P-293-R2) in Auto or Off at the pump.
- Individual alarms may be bypassed at the HMI.
- Manual operation will override all sequences.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE J **REVISION No: 0** **August 28, 2000**

SHUTDOWN STORAGE DIKE SUMP PUMP (P-375)

Reference: P&ID Drawings A-1069-00-15, 16, 17, 18, 26

Purpose: To stop transfer of water between the Storage Dike Sump and storage tanks.

The following control actions will take place:

- The pump motor in the Storage Dike Sump (P-375) will be inhibited from running. OY-375 will be forced to off.
- SEQ-J alarms.

When any of the conditions listed below occur:

- Level in Decanter No. 1 (HP-03) is above 80% for 15 seconds.
  LAHH-101 will alarm.
- Level in Decanter No. 1 (HP-03) is above high-high limit switch for 15 seconds.
  LAHH-102 will alarm.
- Level in Decanter No. 2 (HP-04) is above 80% for 15 seconds.
  LAHH-103 will alarm.
- Level in Decanter No. 2 (HP-04) is above high-high limit switch for 15 seconds.
  LAHH-104 will alarm.
- Level in Decanter No. 3 (HP-05) is above 80% for 15 seconds.
  LAHH-105 will alarm.
- Level in Decanter No. 3 (HP-05) is above high-high limit switch for 15 seconds.
  LAHH-106 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 90% for 15 seconds.
  LAHH-107 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above high-high limit switch for 15 seconds.
  LAHH-108 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 80% for 15 seconds.
  LAH-107 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 90% for 15 seconds.
  LAHH-109 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above high-high limit switch for 15 seconds.
  LAHH-110 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 80% for 15 seconds.
  LAH-109 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 90% for 15 seconds.
  LAHH-810 will alarm.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Level in Leachate Storage Tank No. 3 (HP-11) is above high-high limit switch for 15 seconds.
  LAHH-811 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 80%.
  LAH-810 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 90% for 15 seconds.
  LAHH-820 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above high-high limit switch for 15 seconds.
  LAHH-821 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 80%.
  LAH-820 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 90% for 15 seconds.
  LAHH-830 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above high-high limit switch for 15 seconds.
  LAHH-831 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 80%.
  LAH-830 will alarm.
- Level in Process Collection Tank (HP-17) is above operator high-high setpoint for 15 seconds.
  LAHH-801 will alarm.
- Level in Process Collection Tank (HP-17) is above high-high level switch for 15 seconds.
  LAHH-802 will alarm.
- Level in Process Collection Sump is above high-high limit switch for 15 seconds.
  LAHH-803 will alarm.
- Level in Process Collection Sump is above high-high level float switch for 15 seconds.
  LAHH-804 will alarm.
- Bad sensor quality LT-101, LT-103, LT-105, LT-107, LT-109, LT-810, LT-820, LT-830, LT-801.
  BQ-SEQ-J will alarm.

After ALL conditions below occur:

- Level in Decanter No. 1 (HP-03) is below 80%.
  LAHH-101 will clear.
- Level in Decanter No. 1 (HP-03) is below high limit switch.
  LAHH-102 will clear.
- Level in Decanter No. 2 (HP-04) is below 80%.
  LAHH-103 will clear.
- Level in Decanter No. 2 (HP-04) is below high limit switch.
  LAHH-104 will clear.
- Level in Decanter No. 3 (HP-05) is below 80%.

LAHH-105 will clear.
- Level in Decanter No. 3 (HP-05) is below high limit switch.
  LAHH-106 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below 80%.
  LAH-107 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below high-high limit switch.
  LAHH-108 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below 80%.
  LAH-109 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below high-high limit switch.
  LAHH-110 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below 80%.
  LAH-810 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below high-high limit switch.
  LAHH-811 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below 80%.
  LAH-820 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below high-high limit switch.
  LAHH-821 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below 80%.
  LAH-830 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below high-high limit switch.
  LAHH-831 will clear.
- Level in Process Collection Tank (HP-17) is below operator high-high setpoint.
  LAHH-801 will clear.
- Level in Process Collection Tank (HP-17) is below high-high level switch.
  LAHH-802 will clear.
- Level in Process Collection Sump is below high-high limit switch.
  LAHH-803 will clear.
- Level in Process Collection Sump is below high-high level float switch.
  LAHH-804 will clear.
- BQ-SEQ-J clears.

Then ....

- The pump motor in the Storage Dike Sump (P-375) will be enabled for normal operation.
- SEQ-J clears.

The operator may ….

- Place the Storage Dike Sump Pump (P-375) in Auto or Manual at the pump.
- Individual alarms may be bypassed at the HMI.
- Manual operation will override all sequences.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE K **REVISION No: 0** **August 28, 2000**

SHUTDOWN DECANTER DIKE SUMP PUMP (P-134)

Reference: P&ID Drawings A-1069-00-15, 16, 17, 18, 27

Purpose: To stop transfer of water between the Decanter Dike Sump and storage tanks.

The following control actions will take place:

- The pump motor in the Decanter Dike Sump (P-134) will be inhibited from running. OY-151A will be forced to off.
- SEQ-K alarms.

When any of the conditions listed below occur:

- Level in Decanter No. 1 (HP-03) is above 80% for 15 seconds.
  LAHH-101 will alarm.
- Level in Decanter No. 1 (HP-03) is above high-high limit switch for 15 seconds.
  LAHH-102 will alarm.
- Level in Decanter No. 2 (HP-04) is above 80% for 15 seconds.
  LAHH-103 will alarm.
- Level in Decanter No. 2 (HP-04) is above high-high limit switch for 15 seconds.
  LAHH-104 will alarm.
- Level in Decanter No. 3 (HP-05) is above 80% for 15 seconds.
  LAHH-105 will alarm.
- Level in Decanter No. 3 (HP-05) is above high-high limit switch for 15 seconds.
  LAHH-106 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 90% for 15 seconds.
  LAHH-107 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above high-high level switch for 15 seconds.
  LAHH-108 will alarm.
- Level in Leachate Storage Tank No. 1 (HP-01) is above 80% for 15 seconds.
  LAH-107 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 90% for 15 seconds.
  LAHH-109 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above high-high level switch for 15 seconds.
  LAHH-110 will alarm.
- Level in Leachate Storage Tank No. 2 (HP-02) is above 80% for 15 seconds.
  LAH-109 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 90% for 15 seconds.
  LAHH-810 will alarm.

SEQUENCE SUMMARY FOR HYDE PARK SITE

- Level in Leachate Storage Tank No. 3 (HP-11) is above high-high limit switch for 15 seconds.
  LAHH-811 will alarm.
- Level in Leachate Storage Tank No. 3 (HP-11) is above 80% for 15 seconds.
  LAH-810 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 90% for 15 seconds.
  LAHH-820 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above high-high limit switch for 15 seconds.
  LAHH-821 will alarm.
- Level in Leachate Storage Tank No. 4 (HP-12) is above 80% for 15 seconds.
  LAH-820 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 90% for 15 seconds.
  LAHH-830 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above high-high limit switch for 15 seconds.
  LAHH-831 will alarm.
- Level in Leachate Storage Tank No. 5 (HP-13) is above 80% for 15 seconds.
  LAH-830 will alarm.
- Bad sensor quality LT-101, LT-103, LT-105, LT-107, LT-109, LT-810, LT-820, LT-830.
  BQ-SEQ-K will alarm.

After ALL conditions below occur:

- Level in Decanter No. 1 (HP-03) is below 80%.
  LAHH-101 will clear.
- Level in Decanter No. 1 (HP-03) is below high limit switch.
  LAHH-102 will clear.
- Level in Decanter No. 2 (HP-04) is below 80%.
  LAHH-103 will clear.
- Level in Decanter No. 2 (HP-04) is below high limit switch.
  LAHH-104 will clear.
- Level in Decanter No. 3 (HP-05) is below 80%.
  LAHH-105 will clear.
- Level in Decanter No. 3 (HP-05) is below high limit switch.
  LAHH-106 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below 80%.
  LAH-107 will clear.
- Level in Leachate Storage Tank No. 1 (HP-01) is below high-high level switch.
  LAHH-108 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below 80%.
  LAH-109 will clear.
- Level in Leachate Storage Tank No. 2 (HP-02) is below high-high level switch.
  LAHH-110 will clear.
- Level in Leachate Storage Tank No. 3 (HP-11) is below 80%.

LAH-810 will clear.

- Level in Leachate Storage Tank No. 3 (HP-11) is below high-high level switch. LAHH-811 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below 80%. LAH-820 will clear.
- Level in Leachate Storage Tank No. 4 (HP-12) is below high-high level switch. LAHH-821 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below 80%. LAH-830 will clear.
- Level in Leachate Storage Tank No. 5 (HP-13) is below high-high level switch. LAHH-831 will clear.
- BQ-SEQ-K clears.

Then ....

- The pump motor in the Decanter Dike Sump (P-134) will be enabled for normal operation.
- SEQ-K will clear.

The operator may ….

- Place the Decanter Dike Sump Pump (P-134) in Auto or Manual at the pump.
- Individual alarms may be bypassed at the HMI.
- Manual operation will override sequences.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE L **REVISION No: 0** **August 28, 2000**

NORTH FORCEMAIN LEAK DETECTION SHUTDOWN

Reference: P&ID Drawings A-01069-00-01, 02, 06, 12, 13, 14

Purpose: To shutdown associated wells if a leak is detected in the North Forcemain.

The following control actions will take place:

- The pump motor in NAPL Purge Well "1U" (P-111A) will be inhibited from running.
  OY-111A-B will be forced to off.
- The pump motor in NAPL Purge Well "1L" (P-113B) will be inhibited from running.
  OY-113A-B will be forced to off.
- The pump motor in NAPL Purge Well "7U" (P-234) will be inhibited from running.
  OY-234 will be forced to off.
- The pump motor in Wet Well "C" (P-101) will be inhibited from running.
  OY-101A will be forced to off.
- The pump motor in APL Purge Well "APW1" (P-11) will be inhibited from running.
  OY-11A-B will be forced to off.
- The pump motor in APL Purge Well "APW2" (P-12) will be inhibited from running.
  OY-12A-B will be forced to off.
- The pump motor in APL Purge Well "APW3" (P-13) will be inhibited from running.
  OY-13A-B will be forced to off.
- SEQ-L alarms.

When any of the conditions listed below occur:

- A leak is detected in APW 1, LAH-251 will alarm.
- A leak is detected in APW 2, LAH-261 will alarm.
- A leak is detected in APW 3, LAH-271 will alarm.
- A leak is detected in WW C, LAH-360 will alarm.
- A leak is detected in PW-1L, LAH-333 will alarm.
- A leak is detected in PW-1U, LAH-343 will alarm.
- A leak is detected in PW-7U, LAH-344 will alarm.
- A leak is detected in MH-36, LAH-136 will alarm.
- A leak is detected in MH-37, LAH-137 will alarm.
- A leak is detected in MH-38, LAH-138 will alarm.
- A leak is detected in MH-39, LAH-139 will alarm.
- A leak is detected in MH-53, LAH-531 will alarm.
- A leak is detected in MH-54, LAH-541 will alarm.
- A leak is detected in MH-55, LAH-551 will alarm.

- A leak is detected in MH-58, LAH-581 will alarm.

After ALL conditions below occur:

- The leak is cleared in APW 1, LAH-251 will clear.
- The leak is cleared in APW 2, LAH-261 will clear.
- The leak is cleared in APW 3, LAH-271 will clear.
- The leak is cleared in WW C, LAH-360 will clear.
- The leak is cleared in PW-1L, LAH-333 will clear.
- The leak is cleared in PW-1U, LAH-343 will clear.
- The leak is cleared in PW-7U, LAH-344 will clear.
- The leak is cleared in MH-36, LAH-136 will clear.
- The leak is cleared in MH-37, LAH-137 will clear.
- The leak is cleared in MH-38, LAH-138 will clear.
- The leak is cleared in MH-39, LAH-139 will clear.
- The leak is cleared in MH-53, LAH-531 will clear.
- The leak is cleared in MH-54, LAH-541 will clear.
- The leak is cleared in MH-55, LAH-551 will clear.
- The leak is cleared in MH-58, LAH-581 will clear.

Then ....

- Wells pumps located along the North Forcemain will be enabled for normal operation.
- SEQ-L clears.

The operator may ….

- Place the well pumps in Auto or Manual operation at the pump.
- Manual operation will override all sequences.
- North leak detection may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE M **REVISION No: 0** **August 28, 2000**

SOUTH FORCEMAIN LEAK DETECTION SHUTDOWN

Reference: P&ID Drawings A-1069-00-01, 03, 04, 05, 06, 07, 08, 09, 10, 11

Purpose: To shutdown associated wells if a leak is detected in the South Forcemain.

The following control actions will take place:

- The pump motor in NAPL Purge Well "2L" (P-116) will be inhibited from running.
  OY-116A-B will be forced to off.
- The pump motor in NAPL Purge Well "2M" (P-115) will be inhibited from running.
  OY-115A-B will be forced to off.
- The pump motor in NAPL Purge Well "2UR" (P-114) will be inhibited from running.
  OY-114A-B will be forced to off.
- The pump motor in NAPL Purge Well "3L" (P-123) will be inhibited from running.
  OY-123A-B will be forced to off.
- The pump motor in NAPL Purge Well "3M" (P-122) will be inhibited from running.
  OY-122A-B will be forced to off.
- The pump motor in NAPL Purge Well "4M" (P-124) will be inhibited from running.
  OY-124A-B will be forced to off.
- The pump motor in NAPL Purge Well "4U" (P-112) will be inhibited from running.
  OY-112A-B will be forced to off.
- The pump motor in NAPL Purge Well "5UR" (P-125) will be inhibited from running.
  OY-125A-B will be forced to off.
- The pump motor in NAPL Purge Well "6MR" (P-152B) will be inhibited from running.
  OY-152B-B will be forced to off.
- The pump motor in NAPL Purge Well "6UR" (P-152A) will be inhibited from running.
  OY-152A-B will be forced to off.
- The pump motor in Wet Well "A" (P-113) will be inhibited from running.
  OY-113 will be forced to off.
- The pump motor in Wet Well "D" (P-102) will be inhibited from running.
  OY-102A will be forced to off.
- The pump motor in Source Control Purge Well "SC2" (P-104) will be inhibited from running.
  OY-104A-B will be forced to off.
- The pump motor in Source Control Purge Well "SC3" (P-143) will be inhibited from running.
  OY-143A-B will be forced to off.
- The pump motor in Source Control Purge Well "SC4" (P-144) will be inhibited from running.

OY-144A-B will be forced to off.

- The pump motor in Source Control Purge Well "SC5" (P-145) will be inhibited from running.
  OY-145A-B will be forced to off.
- The pump motor in Source Control Purge Well "SC6" (P-146) will be inhibited from running.
  OY-146A-B will be forced to off.
- SEQ-D is tripped – Shutdown APL Well Pumps to Leachate Storage Tanks.
- SEQ-M alarms.

When any of the conditions listed below occur:

- A leak is detected in WW D, LAH-361 will alarm.
- A leak is detected in PW-2L, LAH-310 will alarm.
- A leak is detected in PW-2M, LAH-320 will alarm.
- A leak is detected in PW-2UR, LAH-315 will alarm.
- A leak is detected in PW-3L, LAH-295 will alarm.
- A leak is detected in PW-3M, LAH-305 will alarm.
- A leak is detected in PW-3UM, LAH-307 will alarm.
- A leak is detected in PW-4U, LAH-338 will alarm.
- A leak is detected in PW-4M, LAH-285 will alarm.
- A leak is detected in PW-5UR, LAH-280 will alarm.
- A leak is detected in PW-6MR, LAH-160 will alarm.
- A leak is detected in PW-6UMR, LAH-290 will alarm.
- A leak is detected in PW-6UMR, LAH-150 will alarm.
- A leak is detected in PW-6UMR, LAH-156 will alarm.
- A leak is detected in PW-6UR, LAH-154 will alarm.
- A leak is detected in MH-40, LAH-140 will alarm.
- A leak is detected in MH-41, LAH-141 will alarm.
- A leak is detected in MH-42, LAH-142 will alarm.
- A leak is detected in MH-43, LAH-143 will alarm.
- A leak is detected in MH-44, LAH-144 will alarm.
- A leak is detected in MH-45, LAH-145 will alarm.
- A leak is detected in MH-46, LAH-146 will alarm.
- A leak is detected in MH-47, LAH-147 will alarm.
- A leak is detected in MH-48, LAH-148 will alarm.
- A leak is detected in MH-49, LAH-149 will alarm.
- A leak is detected in MH-50, LAH-501 will alarm.
- A leak is detected in MH-56, LAH-511 will alarm.
- A leak is detected in MH-56, LAH-512 will alarm.
- A leak is detected in MH-57, LAH-521 will alarm.
- A leak is detected in MH-57, LAH-522 will alarm.
- A leak is detected in MH-57, LAH-523 will alarm.
- A leak is detected in MH-57, LAH-524 will alarm.

SEQUENCE SUMMARY FOR HYDE PARK SITE

After ALL conditions below occur:

- The leak is cleared in WW D, LAH-361 will clear.
- The leak is cleared in PW-2L, LAH-310 will clear.
- The leak is cleared in PW-2M, LAH-320 will clear.
- The leak is cleared in PW-2UR, LAH-315 will clear.
- The leak is cleared in PW-3L, LAH-295 will clear.
- The leak is cleared in PW-3M, LAH-305 will clear.
- The leak is cleared in PW-3UM, LAH-307 will clear.
- The leak is cleared in PW-4U, LAH-338 will clear.
- The leak is cleared in PW-4M, LAH-285 will clear.
- The leak is cleared in PW-5UR, LAH-280 will clear.
- The leak is cleared in PW-6MR, LAH-160 will clear.
- The leak is cleared in PW-6UMR, LAH-290 will clear.
- The leak is cleared in PW-6UMR, LAH-150 will clear.
- The leak is cleared in PW-6UMR, LAH-156 will clear.
- The leak is cleared in PW-6UR, LAH-154 will clear.
- The leak is cleared in MH-40, LAH-140 will clear.
- The leak is cleared in MH-41, LAH-141 will clear.
- The leak is cleared in MH-42, LAH-142 will clear.
- The leak is cleared in MH-43, LAH-143 will clear.
- The leak is cleared in MH-44, LAH-144 will clear.
- The leak is cleared in MH-45, LAH-145 will clear.
- The leak is cleared in MH-46, LAH-146 will clear.
- The leak is cleared in MH-47, LAH-147 will clear.
- The leak is cleared in MH-48, LAH-148 will clear.
- The leak is cleared in MH-49, LAH-149 will clear.
- The leak is cleared in MH-50, LAH-501 will clear.
- The leak is cleared in MH-56, LAH-511 will clear.
- The leak is cleared in MH-56, LAH-512 will clear.
- The leak is cleared in MH-57, LAH-521 will clear.
- The leak is cleared in MH-57, LAH-522 will clear.
- The leak is cleared in MH-57, LAH-523 will clear.
- The leak is cleared in MH-57, LAH-524 will clear.

Then ....

- Well pumps located along the south forcemain will be enabled for normal operation.
- SEQ-M clears.

The operator may ….

- Place the well pumps in Auto or Manual operation at the pump.
- Manual operation will override all sequences.
- South leak detection may be bypassed at the HMI.

SEQUENCE SUMMARY FOR HYDE PARK SITE

SEQUENCE N **REVISION No: 0** **August 13, 2001**

2001 FORCEMAIN LEAK DETECTION SHUTDOWN

Reference: P&ID Drawings A-01069-00-14A, 14B

Purpose: To shutdown associated wells if a leak is detected in the 2001 Forcemain.

The following control actions will take place:

- The pump motor in NAPL Purge Well "8U" (P-161LC) will be inhibited from running.
  OY-161LC will be forced to off.
- The pump motor in NAPL Purge Well "8M" (PW-211) will be inhibited from running.
  OY-211 will be forced to off.
- The pump motor in NAPL Purge Well "9U" (P-161LB) will be inhibited from running.
  OY-161LB will be forced to off.
- The pump motor in NAPL Purge Well "10U" (P-161LA) will be inhibited from running.
  OY-161LA will be forced to off.
- SEQ-N alarms.

When any of the conditions listed below occur:

- A leak is detected in PW-8U, LAH-378 will alarm.
- A leak is detected in PW-8M, LAH-382 will alarm.
- A leak is detected in PW-9U, LAH-374 will alarm.
- A leak is detected in PW-10U, LAH-370 will alarm.

After ALL conditions below occur:

- The leak is cleared in PW-8U, LAH-378 will clear.
- The leak is cleared in PW-8M, LAH-382 will clear.
- The leak is cleared in PW-9U, LAH-374 will clear.
- The leak is cleared in PW-10U, LAH-370 will clear.

Then ....

- Wells pumps located along the 2001 Forcemain will be enabled for normal operation.
- SEQ-N clears.

The operator may ….

- Place the well pumps in Auto or Manual operation at the pump.
- Manual operation will override all sequences.
- 2001 forcemain leak detection may be bypassed at the HMI.

SECTION B: COMPLEX LOOPS

PURGE WELL PW-1U LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C100	A-1069-00-06	PW-1U Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-1U is controlled automatically by level transmitter LT-346 and pump P-111A.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-111A	OS-111A	0	7	2	DI	I:007/2
DC1-1U-A	OY-111A-B	1	6	2	DO	O:16/2
LT-346	LT-346	2	6	4	AI	N126:8
DC1-1U-LSP	PW-1U-LSP	-	-	-	AI	N22:0
DC1-1U-FLT	PW-1U-FLT	-	-	-	DO	N19:0/0

3. Steady-State Operation

In automatic mode, P-111A is controlled by level transmitter LT-346. At the HMI, the operator enters a level setpoint, DC1-1U-LSP. The pump will turn on when the level is 2.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 2.5 feet below the setpoint. If the PLC requests a pump start and no run status signal is received after a 3 second delay, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C and L for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-346	LAH-346	N20:50/0	5 ft above	0
LAL-346	LAL-346	N20:51/0	5 ft below	0
LALL-346	LALL-346	N20:52/0	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-1L LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C101	A-1069-00-06	PW-1L Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-1L is controlled automatically by level transmitter LT-336 and pump P-113A.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-113A	OS-113A	0	7	0	DI	I:007/0
DC1-1L-A	OY-113A-B	1	6	0	DO	O:016/0
LT-336	LT-336	2	6	2	AI	N126:6
DC1-1L-LSP	PW-1L-LSP	-	-	-	AI	N22:1
DC1-1L-FLT	PW-1L-FLT	-	-	-	DO	N19:0/1

3. Steady-State Operation

In automatic mode, P-113A is controlled by level transmitter LT-336. At the HMI, the operator enters a level setpoint, DC1-1L-LSP. The pump will turn on when the level is 2.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 2.5 feet below the setpoint. If the PLC requests a start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C and L for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-336	LAH-336	N20:50/1	5 ft above	0
LAL-336	LAL-336	N20:51/1	5 ft below	0
LALL-336	LALL-336	N20:52/1	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-2UR LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C102	A-1069-00-07	PW-2UR Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-2UR is controlled automatically by level transmitter LT-318 and pump P-114.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-114A	OS-114A	0	6	10	DI	I:006/10
DC1-2UR-A	OY-114A-B	1	5	10	DO	O:015/10
LT-318	LT-318	2	6	10	AI	N126:14
DC1-2UR-LSP	PW-2UR-LSP	-	-	-	AI	N22:11
DC1-2UR-FLT	PW-2UR-FLT	-	-	-	DO	N19:0/11

3. Steady-State Operation

In automatic mode, P-114 is controlled by level transmitter LT-318. At the HMI, the operator enters a level setpoint, DC1-2UR-LSP. The pump will turn on when the level is 2.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 2.5 feet below the setpoint. If the PlC requests a start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-318	LAHH-318	N20:50/11	10 ft above	0
LAL-318	LAL-318	N20:51/11	5 ft below	0
LALL-318	LALL-318	N20:52/11	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-2M LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C103	A-1069-00-08	PW-2M Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-2M is controlled automatically by level transmitter LT-323, variable frequency drive SC-241, and pump P-115.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
SY-241	SY-241	0	7	13	DI	I:007/13
OS-115A	OS-115A	0	7	12	DI	I:007/12
LT-323.F-CV	LT-323	2	6	8	AI	N126:12
2M-Freq-Display	SC-241	2	0	2	AO	O:020/2
HY-241SP	HY-241	-	-	-	AI	F23:4
DC1-2M-FLT	PW-2M-FLT	-	-	-	DO	N19:0/3

3. Steady-State Operation

Pump P-115A is controlled by Variable Frequency Drive 241 (SC-241) and by level transmitter LT-323. At the HMI, the operator enters a level setpoint, HY-241SP (~2 feet above pump suction). In automatic mode, SC-241 speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-241 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level is 3 feet above the setpoint. The pump will continue to run until the level in the well falls 1 foot below the setpoint. If the PLC requests a pump start and no run status signal is recived after 3 seconds, a pump fault will occur and the pump will be disabled Refer to Sequences A, B, C, and M for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-323	LAHH-323	N20:50/3	5 ft above	0
LAL-323	LAL-323	N20:51/3	5 ft below	0
LALL-323	LALL-323	N20:52/3	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-2L LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C104	A-1069-00-06	PW-2L Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-2L is controlled automatically by level transmitter LT-313, variable frequency drive SC-235, and pump P-116.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
SY-235	SY-235	0	7	11	DI	I:007/11
OS-116A	OS-116A	0	7	10	DI	I:007/10
LT-313.F-CV	LT-313	2	6	6	AI	N126:10
2L-Freq-Display	SC-235	2	0	0	AO	O:020/0
HY-235SP	HY-235	-	-	-	AI	F23:3
DC1-2L-FLT	PW-2L-FLT	-	-	-	DO	N19:0/2

3. Steady-State Operation

Pump P-116 is controlled by Variable Frequency Drive 235 (SC-235) and by level transmitter LT-313. At the HMI, the operator enters a level setpoint, HY-235SP (~ 2 feet above pump suction). In automatic mode, SC-235 speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-235 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level is 2.5 feet above the setpoint. The pump will continue to run until the level in the well falls 2.5 foot below the setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-313	LAHH-313	N20:50/2	5 ft above	0
LAL-313	LAL-313	N20:51/2	5 ft below	0
LALL-313	LALL-313	N20:52/2	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-3M LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C105	A-1069-00-09	PW-3M Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-3M is controlled automatically by level transmitter LT-308, variable frequency drive SC-232, and pump P-122.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
SY-232	SY-232	0	10	3	DI	I:010/3
OS-122A	OS-122A	0	10	4	DI	I:010/4
LT-308.F-CV	LT-308	2	7	4	AI	N127:7
3M-Freq-Display	SC-232	2	0	6	AO	O:020/6
HY-232SP	HY-232	-	-	-	AI	F23:6
DC1-3M-FLT	PW-3M-FLT	-	-	-	DO	N19:0/8

3. Steady-State Operation

Pump P-122 is controlled by Variable Frequency Drive 232 (SC-232) and by level transmitter LT-308. At the HMI, the operator enters a level setpoint, HY-232SP (~ 2 feet above pump suction). In automatic mode, SC-232 speed is operated via the PLC to maintain the level setpoint. The speed for this VFD is limited to 0% and 100% (the PLC does not modulate speed to maintain level). In manual mode, the SC-232 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level is 2.5 feet above the setpoint. The pump will continue to run until the level in the well falls 2.5 foot below the setpoint. If the PLC requests a pump start and no run status signal is received after 10 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-308	LAHH-308	N20:50/8	5 ft above	0
LAL-308	LAL-308	N20:51/8	5 ft below	0
LALL-308	LALL-308	N20:52/8	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-3L LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C106	A-1069-00-09	PW-3L Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-3L is controlled automatically by level transmitter LT-298, variable frequency drive SC-226, and pump P-123.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
SY-226	SY-226	0	10	1	DI	I:010/1
OS-123A	OS-123A	0	10	0	DI	I:010/0
LT-298.F-CV	LT-298	2	7	2	AI	N127:6
3L-Freq-Display	SC-226	2	0	4	AO	O:020/4
HY-226SP	HY-226	-	-	-	AI	F23:5
DC1-3L-FLT	PW-3L-FLT	-	-	-	DO	N19:0/6

3. Steady-State Operation

Pump P-123 is controlled by Variable Frequency Drive 226 (SC-226) and by level transmitter LT-298. At the HMI, the operator enters a level setpoint, HY-226SP (~ 2 feet above pump suction). In automatic mode, SC-226 speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-226 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level is 2.5 feet above the setpoint. The pump will continue to run until the level in the well falls 2.5 foot below the setpoint. If the PLC requests a pump start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-298	LAHH-298	N20:50/6	5 ft above	0
LAL-298	LAL-298	N20:51/6	5 ft below	0
LALL-298	LALL-298	N20:52/6	5 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-4U LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C107	A-1069-00-10	PW-4U Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-4U is controlled automatically by level transmitter LT-341 and pump P-112.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-112A	OS-112A	0	10	6	DI	I:010/6
DC1-4U-A	OY-112A-B	1	7	12	DO	O:017/2
LT-341	LT-341	2	7	8	AI	N127:12
DC1-4U-LSP	PW-4U-LSP	-	-	-	AI	N22:5
DC1-4U-FLT	PW-4U-FLT	-	-	-	DO	N19:0/5

3. Steady-State Operation

In automatic mode, P-112 is controlled by level transmitter LT-341. At the HMI, the operator enters a level setpoint, DC1-4U-LSP. The pump will turn on when the level is 2.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 2.5 feet below the setpoint. If the PLC requests a start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-341	LAHH-341	N20:50/5	5 ft above	0
LAL-341	LAL-341	N20:51/5	5 ft below	0
LALL-341	LALL-341	N20:52/5	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-4M LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C108	A-1069-00-10	PW-4M Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-4M is controlled automatically by level transmitter LT-288 and pump P-124.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-124A	OS-124A	0	10	4	DI	I:010/4
DC1-4M-A	OY-124A-B	1	7	10	DO	O:017/10
LT-288	LT-288	2	7	6	AI	N127:10
DC1-4M-LSP	PW-4M-LSP	-	-	-	AI	N22:4
DC1-4M-FLT	PW-4M-FLT	-	-	-	DO	N19:0/4

3. Steady-State Operation

In automatic mode, P-124 is controlled by level transmitter LT-288. At the HMI, the operator enters a level setpoint, DC1-4M-LSP. The pump will turn on when the level is 2.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 2.5 feet below the setpoint. If the PLC requests a pump start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-288	LAHH-288	N20:50/4	5 ft above	0
LAL-288	LAL-288	N20:51/5	5 ft below	0
LALL-288	LALL-288	N20:52/4	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-5UR LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C109	A-1069-00-08	PW-5UR Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-5UR is controlled automatically by level transmitter LT-283 and pump P-125.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	TYPE
OS-125A	OS-125A	0	6	11	DI	I:006/11
DC1-5UR-A	OY-125A-B	1	5	12	DO	O:015/12
LT-283	LT-283	2	7	10	AI	N127:14
DC1-5UR-LSP	PW-5UR-LSP	-	-	-	AI	N22:10
DC1-5UR-FLT	PW-5UR-FLT	-	-	-	DO	N19:0/10

3. Steady-State Operation

In automatic mode, P-125 is controlled by level transmitter LT-283. At the HMI, the operator enters a level setpoint, DC1-5UR-LSP. The pump will turn on when the level is 2.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 2.5 feet below the setpoint. If the PLC requests a start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-283	LAHH-283	N20:50/10	10 ft above	0
LAL-283	LAL-283	N20:51/10	5 ft below	0
LALL-283	LALL-283	N20:52/10	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-6UR LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C110	A-1069-00-11	PW-6UR Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-6UR is controlled automatically by level transmitter LT-151 and pump P-152A.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-152A	OS-152A	0	6	13	DI	I:006/13
DC1-6UR-A	OY-152A-B	1	5	14	DO	O:015/14
LT-151	LT-151	2	7	12	AI	N127:16
DC1-6UR-LSP	PW-6UR-LSP	-	-	-	AI	N22:9
DC1-6UR-FLT	PW-6UR-FLT	-	-	-	DO	N19:0/9

3. Steady-State Operation

In automatic mode, P-152A is controlled by level transmitter LT-151. At the HMI, the operator enters a level setpoint, DC1-6UR-LSP. The pump will turn on when the level is 2.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 2.5 feet below the setpoint. If the PLC requests a pump start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-151	LAHH-151	N20:50/9	10 ft above	0
LAL-151	LAL-151	N20:51/9	5 ft below	0
LALL-151	LALL-151	N20:52/9	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-6MR LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C111	A-1069-00-11	PW-6MR Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Purge Well PW-6MR is controlled automatically by level transmitter LT-162 and pump P-152B.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-152B	OS-152B	0	6	15	DI	I:006/15
DC1-6MR-A	OY-152B-B	1	5	16	DO	O:015/16
LT-162	LT-162	3	1	2	AI	F23:200
DC1-6MR-LSP	PW-6MR-LSP	-	-	-	AI	F23:203
DC1-6MR-FLT	PW-6MR-FLT	-	-	-	DO	N19:0/4

3. Steady-State Operation

In automatic mode, P-152B is controlled by level transmitter LT-162. At the HMI, the operator enters a level setpoint, DC1-6MR-LSP. The pump will turn on when the level is 2.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 2.5 feet below the setpoint. If the PLC requests a pump start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-162	LAHH-162	N20:50/12	10 ft above	0
LAL-162	LAL-162	N20:51/12	5 ft below	0
LALL-162	LALL-162	N20:52/12	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

PURGE WELL PW-7U LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C112	A-1069-00-12	PW-7U Level Control	8/20/2001	12/7/2001	1/9/2002

1. Summary Description

Purge Well PW-7U is controlled automatically by level transmitter LT-172, variable frequency drive SC-234, and pump P-234.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
YS-234	YS-234	7U	0	2	DI	I:0/2
LT-172.F-CV	LT-172	7U	1	1	AI	I:1.1
7U-Freq-Display	-	-	-	-	AO	F23:120
HY-234SP	HY-234	-	-	-	AI	F23:117
LSH-172SP	-	-	-	-	AI	F23:115
LSL-172SP	-	-	-	-	AI	F23:116
DC1-7U-FLT	DC1-7U-FLT	-	-	-	DO	N19:4/0

3. Steady-State Operation

Pump P-234 is controlled by Variable Frequency Drive 234 (SC-234) and by level transmitter LT-172. At the HMI, the operator enters a level setpoint, HY-234, as well as a high (LSH-172SP) and a low (LSL-172SP) level setpoint. In automatic mode, SC-234 speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-234 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level reaches the high level setpoint. The pump will continue to run until the level in the well falls below the low level setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences D and L for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-172	LAH-172	N20:47/0	operator set	120
LAL-172	LAL-172	N20:48/0	operator set	1

Both the high and low level alarms are displayed on the HMI.

APL PURGE WELL APW-1 LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C113	A-1069-00-13	APW-1 Level Control	8/20/2001	12/7/2001	1/9/2002

1. Summary Description

APL Purge Well APW-1 is controlled automatically by level transmitter LT-250, Variable Frequency Drive SC-11, and pump P-11.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-11A	OS-11A	APW1	0	2	DI	I:0/2
LT-250.F-CV	LT-250	APW1	1	1	AI	I:1.1
APW1-Freq-Display	-	-	-	-	AO	F23:35
HY-11SP	HY-11	-	-	-	AI	F23:32
LSH-250SP	-	-	-	-	AI	F23:30
LSL-250SP	-	-	-	-	AI	F23:31
APW-1-FLT	APW-1-FLT	-	-	-	DO	N19:7/0

3. Steady-State Operation

Pump P-11 is controlled by Variable Frequency Drive 11 (SC-11) and by level transmitter LT-250. At the HMI, the operator enters a level setpoint, HY-11, as well as a high (LSH-250SP) and a low (LSL-250SP) level setpoint. In automatic mode, SC-11 speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-11 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level reaches the high level setpoint. The pump will continue to run until the level in the well falls below the low level setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences D and L for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-250	LAH-250	N20:47/5	operator set	120
LAL-250	LAL-250	N20:48/5	operator set	1

Both the high and low level alarms are displayed on the HMI.

APL PURGE WELL APW-2 LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C114	A-1069-00-13	APW-2 Level Control	8/20/2001	12/7/2001	1/9/2002

1. Summary Description

APL Purge Well APW-2 is controlled automatically by level transmitter LT-260, Variable Frequency Drive SC-12, and pump P-12.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-12A	OS-12A	APW2	0	2	DI	I:0/2
LT-260.F-CV	LT-260	APW2	1	1	AI	I:1.1
APW2-Freq-Display	-	-	-	-	AO	F23:45
HY-12SP	HY-12	-	-	-	AI	F23:42
LSH-260SP	-	-	-	-	AI	F23:40
LSL-260SP	-	-	-	-	AI	F23:41
APW-2-FLT	APW-2-FLT	-	-	-	DO	N19:7/1

3. Steady-State Operation

Pump P-12 is controlled by Variable Frequency Drive 12 (SC-12) and by level transmitter LT-260. At the HMI, the operator enters a level setpoint, HY-12, as well as a high (LSH-260SP) and a low (LSL-260SP) level setpoint. In automatic mode, SC-12 speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-12 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level reaches the high level setpoint. The pump will continue to run until the level in the well falls below the low level setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences D and L for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-260	LAH-260	N20:47/6	operator set	120
LAL-260	LAL-260	N20:48/6	operator set	1

Both the high and low level alarms are displayed on the HMI.

SOURCE CONTROL WELL SC-3 LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C116	A-1069-00-03	SC-3 Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Source Control Well SC-2 is manually checked weekly by the operator. If pump P-104 is enabled to run, automatic shutoff is controlled by level transmitter LT-203.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-104A	OS-104A	0	5	0	DI	I:005/0
DC3-SC2-A	OY-104A-B	1	4	1	DO	O:014/1
LT-203	LT-203	2	6	11	AI	N126:15
DC3-SC2-LSP	SC-2-LSP	-	-	-	AI	N22:20
DC3-SC2-FLT	SC-2-FLT	-	-	-	DO	N19:2/0

3. Steady-State Operation

At the HMI, the operator enters a level setpoint, DC3-SC2-LSP. The level is checked by the operator weekly. If the operator determines the level (from LT-203) in the well requires pumping, P-104 is enabled. The pump will continue to run until the level in the well falls 1.5 feet below the setpoint. At this level, the pump will automatically be disabled. If the PLC requests a pump start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-203	LAH-203	N20:55/0	5 ft above	0
LAL-203	LAL-203	N20:56/0	5 ft below	0
LALL-203	LALL-203	N20:57/0	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

SOURCE CONTROL WELL SC-3 LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C116	A-1069-00-03	SC-3 Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Source Control Well SC-3 is manually checked weekly by the operator. If pump P-143 is enabled to run, automatic shutoff is controlled by level transmitter LT-208.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-143A	OS-143A	0	5	2	DI	I:005/2
DC3-SC3-A	OY-143A-B	1	4	3	DO	O:014/3
LT-208	LT-208	2	6	12	AI	N126:16
DC3-SC3-LSP	SC-3-LSP	-	-	-	AI	N22:21
DC3-SC3-FLT	SC-3-FLT	-	-	-	DO	N19:2/1

3. Steady-State Operation

At the HMI, the operator enters a level setpoint, DC3-SC3-LSP. The level is checked by the operator weekly. If the operator determines the level (from LT-208) in the well requires pumping, P-143 is enabled. The pump will continue to run until the level in the well falls 1.5 feet below the setpoint. At this level, the pump will automatically be disabled. If the PLC requests a pump start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-208	LAH-208	N20:55/1	5 ft above	0
LAL-208	LAL-208	N20:56/1	5 ft below	0
LALL-208	LALL-208	N20:57/1	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

SOURCE CONTROL WELL SC-4 LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C117	A-1069-00-04	SC-4 Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Source Control Well SC-4 is manually checked weekly by the operator. If pump P-144 is enabled to run, automatic shutoff is controlled by level transmitter LT-209.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-144A	OS-144A	0	5	4	DI	I:005/4
DC3-SC4-A	OY-144A-B	1	4	5	DO	0:014/5
LT-209	LT-209	2	6	13	AI	N126:17
DC3-SC4-LSP	SC-4-LSP	-	-	-	AI	N22:22
DC3-SC4-FLT	SC-4-FLT	-	-	-	DO	N19:2/2

3. Steady-State Operation

At the HMI, the operator enters a level setpoint, DC3-SC4-LSP. The level is checked by the operator weekly. If the operator determines the level (from LT-209) in the well requires pumping, P-144 is enabled. The pump will continue to run until the level in the well falls 1.5 feet below the setpoint. At this level, the pump will automatically be disabled. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-209	LAH-209	N20:55/2	5 ft above	0
LAL-209	LAL-209	N20:56/2	5 ft below	0
LALL-209	LALL-209	N20:57/2	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

SOURCE CONTROL WELL SC-5 LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C118	A-1069-00-04	SC-5 Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Source Control Well SC-5 is manually checked weekly by the operator. If pump P-145 is enabled to run, automatic shutoff is controlled by level transmitter LT-210.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-145A	OS-145A	0	5	10	DI	I:005/10
DC3-SC5-A	OY-145A-B	1	4	11	DO	O:014/11
LT-210	LT-210	2	6	14	AI	N126:18
DC3-SC5-LSP	SC-5-LSP	-	-	-	AI	N22:23
DC3-SC5-FLT	SC-5-FLT	-	-	-	DO	N19:2/3

3. Steady-State Operation

At the HMI, the operator enters a level setpoint, DC3-SC5-LSP. The level is checked by the operator weekly. If the operator determines the level (from LT-210) in the well requires pumping, P-145 is enabled. The pump will continue to run until the level in the well falls 1.5 feet below the setpoint. At this level, the pump will automatically be disabled. If the PLC requests a pump start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-210	LAH-210	N20:55/3	5 ft above	0
LAL-210	LAL-210	N20:56/3	5 ft below	0
LALL-210	LALL-210	N20:57/3	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

SOURCE CONTROL WELL SC-6 LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C119	A-1069-00-03	SC-6 Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Source Control Well SC-6 is manually checked weekly by the operator. If pump P-146 is enabled to run, automatic shutoff is controlled by level transmitter LT-211.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-146A	OS-146A	0	5	12	DI	I:005/12
DC3-SC6-A	OY-146A-B	1	4	13	DO	O:014/13
LT-211	LT-211	2	6	15	AI	N126:19
DC3-SC6-LSP	SC-6-LSP	-	-	-	AI	N22:24
DC3-SC6-FLT	SC-6-LFT	-	-	-	DO	N19:2/4

3. Steady-State Operation

At the HMI, the operator enters a level setpoint, DC3-SC6-LSP. The level is checked by the operator weekly. If the operator determines the level (from LT-211) in the well requires pumping, P-146 is enabled. The pump will continue to run until the level in the well falls 1.5 feet below the setpoint. At this level, the pump will automatically be disabled. If the PLC requests a pump start and no run status signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-211	LAH-211	N20:55/4	5 ft above	0
LAL-211	LAL-211	N20:56/4	5 ft below	0
LALL-211	LALL-211	N20:57/4	10 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

WET WELL A LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C120	A-1069-00-01	WW A Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Wet Well WW-A is controlled automatically by LC-348 and pump P-113.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-113	OS-113	0	1	0	DI	I:001/0

3. Steady-State Operation

In automatic mode, P-113 is controlled by level controller LC-348. The pump will turn on when the level reaches LCH-348. The pump will continue to run until the level in the well falls below LCL-348. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-348	LAH-348	N20:1/2	operator set	0

The high alarm is displayed on the HMI.

WET WELL C LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C121	A-1069-00-01	WW C Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Wet Well WW-C is controlled automatically by level transmitter LT-165 and pump P-101.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-101A	OS-101A	0	0	13	DI	I:000/13
WWC-A	OY-101A-A	1	3	16	DO	O:013/16
LT-165	LT-165	3	0	8	AI	N130:11
WWC-LSP	WWC-LSP	-	-	-	AI	N22:17
WWC-FLT	P-101A-FLT	-	-	-	DO	N19:1/1

3. Steady-State Operation

In automatic mode, P-101 is controlled by level transmitter LT-165. At the HMI, the operator enters a level setpoint, WWC-LSP. The pump will turn on when the level is 0.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 0.5 feet below the setpoint. If the PLC requests a pump start and no run signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and L for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-354	LAH-354	N20:1/3	operator set	0
LAH-165	LAH-165	N20:50/7	2 ft above	0
LAL-165	LAL-165	N20:50/13	1 ft below	0
LALL-165	LALL-165	N20:50/14	2 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

WET WELL D LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C122	A-1069-00-01	WW D Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Wet Well WW-D is controlled automatically by level transmitter LT-166 and pump P-102.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-102A	OS-102A	0	0	14	DI	I:000/14
WWD-A	OY-102A-A	1	3	17	DO	O:013/17
LT-166	LT-166	3	0	9	AI	N130:13
WWD-LSP	WWD-LSP	-	-	-	AI	N22:18
WWD-FLT	-	-	-	-	DO	N19:1/2

3. Steady-State Operation

In automatic mode, P-102 is controlled by level transmitter LT-166. At the HMI, the operator enters a level setpoint, WWD-LSP. The pump will turn on when the level is 0.5 feet above the level setpoint. The pump will continue to run until the level in the well falls 0.5 feet below the setpoint. If the PLC requests a pump start and no run signal is received after 3 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences A, B, C, and M for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-357	LAH-357	N20:1/4	operator set	0
LAH-166	LAH-166	N20:50/15	2 ft above	0
LAL-166	LAL-166	N20:51/13	1 ft below	0
LALL-166	LALL-166	N20:51/14	2 ft below	0

Both the high and low level alarms are displayed on the HMI. A low-low level alarm is displayed on the HMI and will disable the pump. This alarm must be acknowledged before the pump will go into automatic mode.

LEACHATE FEED FLOW CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C123	A-1069-00-18	Leachate Feed Flow Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Leachate Feed Flow is controlled by Leachate Feed Pumps No. 1 (P-224) and No. 2 (P-264), flow control valve FV-712, and flow transmitter FIT-712.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
FCV-712OUT	FV_712	3	5	2	AO	N135:1
FIT-712	FIT-712	2	5	4	AI	N125:8
P224-A	F712-DIR-1	-	-	-	DI	N21:20/0
P264-S	F712-DIR-2	-	-	-	DI	N21:20/1
FCV-712SP	FCV-712SP	-	-	-	AI	F23:8

3. Steady-State Operation

At the HMI, the operator selects either Leachate Feed Pump No. 1 (P-224) or Leachate Feed Pump No. 2 (P-264) for primary operation. The operator also enters a flow setpoint, FCV-712SP. When either Leachate Feed Pump No. 1 (P-224) or No. 2 (P-264) is started, the valve will gradually open from 10% until the flow detected at FIT-712 reaches the flow setpoint, FCV-712SP. The control valve will then continuously modulate to maintain a flowrate at FIT-712 consistent with the setpoint. Upon Leachate Feed Pump shutdown, the valve will close to 0%. This flow control valve will only be capable of modulating between 0% and 60%. Refer to Sequence F for Leachate Feed Pump automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
ZAL-712	ZAL-712	N20:0/10	0% open	0

The valve closed alarm is displayed on the HMI. This alarm must be acknowledged before the Leachate Feed Pumps will go into automatic mode.

BACKWASH TREATMENT SYSTEM

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C124	A-1060-00-23, 24	Backwash System Operation	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

The level in the Backwash Tank (HP-08) is controlled automatically using level transmitter LIT-806 and Backwash Transfer Pump, P-215. Flow from the Backwash Transfer Pump (P-215) is controlled using flow transmitter FIT-701 and flow control valve FV-701.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
FCV-701OUT	FV-701	3	3	3	AO	N133:2
FIT-701	FIT-701	2	5	11	AI	N125:15
FIT-701SP	FIT-701SP	-	-	-	AI	F23:102
LIT-806	LIT-806	3	0	4	AI	N130:8
OS-215	OY-215	0	3	13	DI	I:003/13
L806-HSP	L806-HSP	-	-	-	AI	F23:25
L806-LSP	L806-LSP	-	-	-	AI	F23:26
F701-PLC-FSP	F701-PLC-FSP	-	-	-	AI	F23:27

3. Steady-State Operation

Pump P-215 is controlled by level transmitter LIT-806. At the HMI, the operator selects a pump on setpoint, L806-HSP and a pump off setpoint, L806-LSP. At the HMI, the operator also selects the flowrate desired, FCV-701SP. The PLC will modulate FV-701 based on operator flow setpoint and FIT-701. Refer to Sequence I for automatic shutdowns.

PROCESS COLLECTION TANK (HP-17) LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C125	A-1069-00-26	Tank Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

In automatic mode, the level in the Process Collection Tank (HP-17) is controlled by P-204, P-212, and LIT-801.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-204	OY-204	1	2	12	DO	O:012/12
OS-212	OY-212	1	2	13	DO	O:012/13
LIT-801	LIT-801	3	0	2	AI	N130:6
PCT-PMP1	HMIPUMP1ENABLE	-	-	-	DI	N21:33/3
PCT-PMP2	HMIPUMP2ENABLE	-	-	-	DI	N21:33/4
PCT-L-LSP	LHMISETPT	-	-	-	AI	N22:16
PCT-H-LSP	HHMI801	-	-	-	AI	N22:15

3. Steady-State Operation

In automatic mode, P-204 and P-212 are controlled by level transmitter LT-801. At the HMI, the operator enters a "pump on" setpoint, PCT-H-LSP, and a "pump off" setpoint, PCT-L-LSP. The pump which is locally set to "automatic" will turn on when the level reaches the "pump on" setpoint for 2 seconds. The operator may also start the pump at the HMI if the level is above the "pump off" setpoint. The pump will continue to run until the level in the well falls below the "pump off" setpoint for 2 seconds. If both pumps are locally set to "automatic", the pumps will both operate based on the same "pump on" and "pump off" level setpoints.

EFFLUENT TANK (HP-07) LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C126	A-1060-00-23	Tank Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

In automatic mode, the level in the Effluent Tank (HP-07) is controlled by LCV-807 and LIT-807.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
LCV-807OUT	LV-807	3	3	2	AO	N133:1
LIT-807	LIT-807	2	4	8	AI	N124:12
LCV-807SP	LCV-807SP	-	-	-	AI	F23:1

3. Steady-State Operation

In automatic mode, LCV-807 is controlled by level transmitter LT-807. At the HMI, the operator enters a level setpoint, LCV-807SP. The valve will continuously modulate between 0% and 45% to maintain the level setpoint. Refer to Sequence H for automatic valve closure.

STORAGE DIKE SUMP LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C127	A-1069-00-18	Sump Level Control	12/15/2000	1/4/2001	

1. Summary Description

In automatic mode, the level in the Storage Dike Sump is controlled by P-375 and LE-813.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-375	OS-375	0	2	15	DI	I:002/15
-	OY-375	1	2	14	DO	O:012/14

3. Steady-State Operation

In automatic mode, P-375 is controlled by level element LE-813. The pump will turn on when the level is above the level switch high. The pump will continue to run until the level in the well falls below the level switch low. Refer to Sequence J for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-814	LAHH-814	N20:0/7	operator set	15
LAHH-813	LAHH-813	N20:2/12	operator set	15

Both of the high high level alarms are displayed on the HMI.

DECANTER DIKE SUMP LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C128	A-1069-00-27	Sump Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

In automatic mode, the level in the Decanter Dike Sump is controlled by P-134 and LE-111.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-134	OS-134	0	0	4	DI	I:000/4
-	OY-134	1	2	15	DO	O:012/15

3. Steady-State Operation

In automatic mode, P-134 is controlled by level transmitter LE-111. The pump will turn on when the level is above the level switch high. The pump will continue to run until the level in the well falls below the level switch low. Refer to Sequence K for automatic shutdown conditions.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-111	LAHH-111	N20:0/3	operator set	15
LAHH-112	LAHH-112	N20:0/6	operator set	15

Both of the high high level alarms are displayed on the HMI.

PROCESS COLLECTION SUMP LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C129	A-1069-00-26	Sump Level Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

In automatic mode, the level in the Process Collection Sump is controlled by P-205 and LE-803.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-205	OS-205	0	4	3	DI	I:04/3

3. Steady-State Operation

In automatic mode, P-205 is controlled by level transmitter LE-803. The pump will turn on when the level is above the level switch high. The pump will continue to run until the level in the well falls below the level switch low.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAHH-801	LAHH-801	N20:30/11	operator set	15
LAHH-803	LAHH-803	N20:3/6	operator set	15
LAHH-804	LAHH-804	N20:3/12	operator set	15

All of the high high level alarms are displayed on the HMI.

PEROXIDE ADDITION FLOW CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C130	A-1069-00-23	Peroxide Flow Control	12/15/2000	1/4/2001	6/1/2001

1. Summary Description

Peroxide is added by metering pump P-291-1. The pump is operated manually with an automatic override.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
-	OY-2911	1	3	7	DO	O:013/7

3. Steady-State Operation

The pump is controlled manually by the operator using local controls. Refer to Sequence F for automatic shutdowns.

SAND FILTER AUTOMATIC BACKWASH

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C131	A-1069-00-19, 20,23	Sand Filter Backwash System	12/15/2000	1/4/2001	

1. Summary Description

Sand Filter Backwash may be initiated either manually or automatically.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-222	OY-222	0	3	12	DI	I:003/13
P293R2-RUN	-	SFPLC	-	-	DI	N15:1/9
SF-BW-IN-PROG	-	SFPLC	-	-	DI	N15:1/0
SF-BW-INITIATE	-	SFPLC	-	-	DI	N16:0/0

3. Steady-State Operation

The operator must valve in the treated water supply to the Diamond Sand Filter System for backwash from P-222. In automatic mode, the Backwash Pump (P-222) will start when a high differential pressure is detected by the Diamond Sand Filter System. The Diamond Sand Filter System can backwash internally if valving around the Diamond Backwash Pump (P-293R2) allows. However, to prevent dead head on P-222, this pump should be in the "off" position if this method of backwash is going to be used. The operator may also initiate a backwash of the Diamond Sand Filter System by selecting the option from the HMI screen, SF-BW-INITIATE. Refer to Sequences G and I for automatic shutdowns.

PURGE WELL PW-8U LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C132	A-1069-00-14B	PW-8U Level Control	8/20/2001	12/7/2001	1/9/2002

1. Summary Description

Purge Well PW-8U is controlled automatically by level transmitter LT-381, variable frequency drive SC-161LC, and pump P-161LC.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
YS-161LC	YS-161LC	8U	0	2	DI	I:0/2
LT-381.F-CV	LT-381	8U	1	1	AI	I:1.1
8U-Freq-Display	-	-	-	-	AO	F23:140
HY-161LCSP	HY-161LC	-	-	-	AI	F23:137
LSH-381SP	-	-	-	-	AI	F23:135
LSL-381SP	-	-	-	-	AI	F23:136
DC1-8U-FLT	-	-	-	-	DO	N19:4/2

3. Steady-State Operation

Pump P-161 is controlled by Variable Frequency Drive 161LC (SC-161LC) and by level transmitter LT-381. At the HMI, the operator enters a level setpoint, HY-161LC, as well as a high (LSH-381SP) and a low (LSL-381SP) level setpoint. In automatic mode, SC-161LC speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-161LC maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level reaches the high level setpoint. The pump will continue to run until the level in the well falls below the low level setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences D and L for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-381	LAH-381	N20:47/2	operator set	120
LAL-381	LAL-381	N20:48/2	operator set	1

Both the high and low level alarms are displayed on the HMI.

PURGE WELL PW-8M LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C133	A-1069-00-14B	PW-8M Level Control	8/20/2001	12/7/2001	1/9/2002

1. Summary Description

Purge Well PW-8M is controlled automatically by level transmitter LT-385, variable frequency drive SC-211, and pump P-211.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
YS-211	YS-211	8M	0	2	DI	I:0/2
LT-385.F-CV	LT-385	8M	1	1	AI	I:1.1
8M-Freq-Display	-	-	-	-	AO	F23:130
HY-211SP	HY-211	-	-	-	AI	F23:127
LSH-385SP	-	-	-	-	AI	F23:125
LSL-385SP	-	-	-	-	AI	F23:126
DC1-8M-FLT	DC1-8M-FLT	-	-	-	DO	N19:4/1

3. Steady-State Operation

Pump P-211 is controlled by Variable Frequency Drive 211 (SC-211) and by level transmitter LT-385. At the HMI, the operator enters a level setpoint, HY-211, as well as a high (LSH-385SP) and a low (LSL-385SP) level setpoint. In automatic mode, SC-211 speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-211 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level reaches the high level setpoint. The pump will continue to run until the level in the well falls below the low level setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences D and L for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-385	LAH-385	N20:47/1	operator set	120
LAL-385	LAL-385	N20:48/1	operator set	1

Both the high and low level alarms are displayed on the HMI.

PURGE WELL PW-9U LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C134	A-1069-00-14A	PW-9U Level Control	8/20/2001	12/7/2001	1/9/2002

1. Summary Description

Purge Well PW-9U is controlled automatically by level transmitter LT-377, variable frequency drive SC-161LB, and pump P-161LB.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
YS-161LB	YS-161LB	9U	0	2	DI	I:0/2
LT-377.F-CV	LT-377	9U	1	1	AI	I:1.1
9U-Freq-Display	-	-	-	-	AO	F23:215
HY-161LBSP	HY-161LB	-	-	-	AI	F23:212
LSH-377SP	-	-	-	-	AI	F23:210
LSL-377SP	-	-	-	-	AI	F23:211
DC1-9U-FLT	DC1-9U-FLT	-	-	-	DO	N19:4/3

3. Steady-State Operation

Pump P-161LB is controlled by Variable Frequency Drive 161LB (SC-161LB) and by level transmitter LT-377. At the HMI, the operator enters a level setpoint, HY-161LB, as well as a high (LSH-377SP) and a low (LSL-377SP) level setpoint. In automatic mode, SC-161LB speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-161LB maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level reaches the high level setpoint. The pump will continue to run until the level in the well falls below the low level setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences D and L for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-377	LAH-377	N20:47/3	operator set	120
LAL-377	LAL-377	N20:48/3	operator set	1

Both the high and low level alarms are displayed on the HMI.

PURGE WELL PW-10U LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C135	A-1069-00-14A	PW-10U Level Control	8/20/2001	12/7/2001	1/9/2002

1. Summary Description

Purge Well PW-10U is controlled automatically by level transmitter LT-373, variable frequency drive SC-161LA, and pump P-161LA.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
YS-161LA	YS-161LA	10U	0	2	DI	I:0/2
LT-373.F-CV	LT-373	10U	1	1	AI	I:1.1
10U-Freq-Display	-	-	-	-	AO	F23:225
HY-161LASP	HY-161LA	-	-	-	AI	F23:222
LSH-373SP	-	-	-	-	AI	F23:220
LSL-373SP	-	-	-	-	AI	F23:221
DC1-10U-FLT	DC1-10U-FLT	-	-	-	DO	N19:4/2

3. Steady-State Operation

Pump P-161LA is controlled by Variable Frequency Drive 161LA (SC-161LA) and by level transmitter LT-373. At the HMI, the operator enters a level setpoint, HY-161LA, as well as a high (LSH-373SP) and a low (LSL-373SP) level setpoint. In automatic mode, SC-161LA speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-161LA maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level reaches the high level setpoint. The pump will continue to run until the level in the well falls below the low level setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences D and L for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-373	LAH-373	N20:47/4	operator set	120
LAL-373	LAL-373	N20:48/4	operator set	1

Both the high and low level alarms are displayed on the HMI.

APL PURGE WELL APW-3 LEVEL CONTROL

LOOP NO:	P&ID NO:	SERVICE DESCRIPTION	IFA	IFD	IFC
C136	A-1069-00-14	APW-3 Level Control	8/20/2001	12/7/2001	

1. Summary Description

APL Purge Well APW-3 is controlled automatically by level transmitter LT-270, Variable Frequency Drive SC-13, and pump P-13.

2. Component Summary

HMI TAG	PLC TAG	LOGICAL RACK	MODULE	POINT	TYPE	ADDRESS
OS-13A	OS-13A	APW3	0	2	DI	I:0/2
LT-270.F-CV	LT-270	APW3	1	1	AI	I:1.1
APW3-Freq-Display	-	-	-	-	AO	
HY-13SP	HY-13	-	-	-	AI	
LSH-270SP	-	-	-	-	AI	
LSL-270SP	-	-	-	-	AI	
APW-3-FLT	APW-3-FLT	-	-	-	DO	

3. Steady-State Operation

Pump P-13 is controlled by Variable Frequency Drive 13 (SC-13) and by level transmitter LT-270. At the HMI, the operator enters a level setpoint, HY-13, as well as a high (LSH-270SP) and a low (LSL-270SP) level setpoint. In automatic mode, SC-13 speed is operated via the PLC to maintain the level setpoint. In manual mode, the SC-13 maintains a speed which is set locally at the drive. In either mode, the pump will turn on when the level reaches the high level setpoint. The pump will continue to run until the level in the well falls below the low level setpoint. If the PLC requests a pump start and no run status signal is received after 5 seconds, a pump fault will occur and the pump will be disabled. Refer to Sequences D and L for automatic shutdown conditions. These conditions apply in both manual and automatic mode.

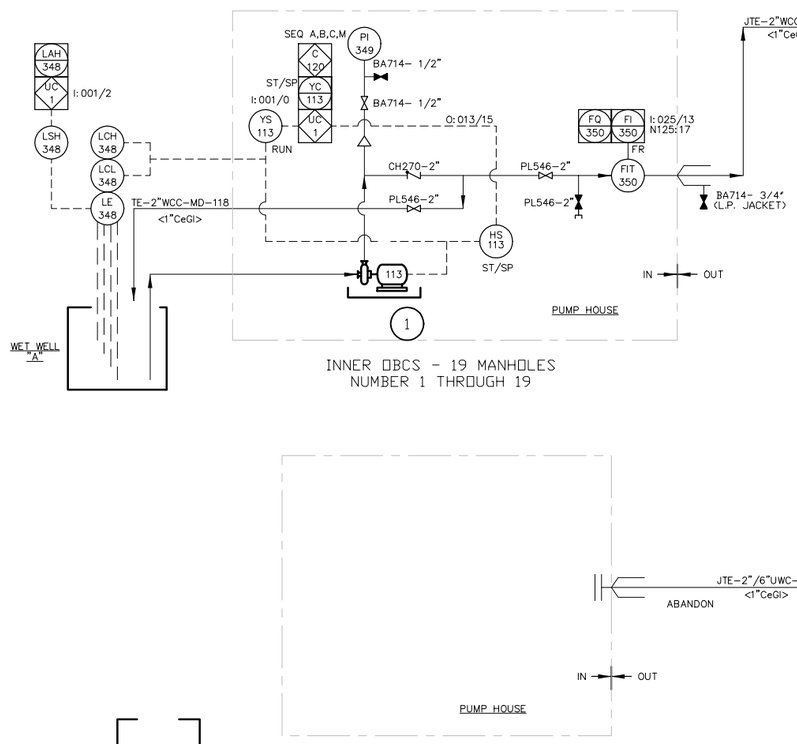
4. Associated Alarms

HMI TAG	PLC TAG	ADDRESS	ALARM POINT	DELAY, s
LAH-270	LAH-270		operator set	120
LAL-270	LAL-270		operator set	1

Both the high and low level alarms are displayed on the HMI.

SECTION C: P&IDs

PLANT ID.	P-113 (1)	P-102 (2)	P-101 (3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	OBCS WET WELL "A" PUMP	OBCS WET WELL "D" PUMP	OBCS WET WELL "C" PUMP																				
DESCRIPTION: MATERIAL	–	DI	DI																				
DESCRIPTION: SIZE	1 1/2"x1 1/2"-B	2 1/2"	2 1/2"																				
DESCRIPTION: CAPACITY	40 GPM @ 52'	50 GPM @ 80'	50 GPM @ 80'																				
DESCRIPTION: TEMP/PRESS	–	–	–																				
DESCRIPTION: HP/V/RPM	3/460/1750	7.5/460/3450	7.5/460/3450																				
DESCRIPTION: WEIGHT	–	–	–																				
DESCRIPTION: MANUFACTURE	GOULD	MEYERS	MEYERS																				
DESCRIPTION: MODEL	3796	XP	XP																				
DESCRIPTION: VENDOR	–	–	–																				



NOTE:

WET WELL C AND WET WELL D MAY BE POWERED USING EMERGENCY GENERATOR DURING POWER FAILURE.

OUTER OBCS - 16 MANHOLES
NUMBER 20 THROUGH 35

INNER OBCS - 19 MANHOLES
NUMBER 1 THROUGH 19

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
OVERBURDEN BARRIER COLLECTION SYSTEMS -OBCS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ NO 01069-00	A-01069-00-01	

01069-00(000)EF-NF001 MAY 07/2002

PLANT ID.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME																							
DESCRIPTION: MATERIAL																							
SIZE																							
CAPACITY																							
TEMP/PRESS																							
HP/V/RPM																							
WEIGHT																							
MANUFACTURE																							
MODEL																							
VENDOR																							

PI 355

FQI 356 / FI 356 / UC 1 FR

I-025/8 N125:12

FIT 356

PL546-2" PL546-2" PL546-2" PL546-2" PL546-1" PL546-1" PL546-1"

TE-2"/3"WCC-MD-123

FQI 366 / FI 366 / UC 1 FR

I-027/13 N127:17

FIT 366

BA761-2" BA761-2" PL546-1"

TE-4"WCC-MD-204

DECANTERS SHEET 15

DECANTERS SHEET 15

WET WELL "C" SHEET 1

2"/6"UWC-PPI-300

SEQ L LAH 139 / UC 1

I-023/1

LSH 139

MH 39

SEQ L LAH 138 / UC 1

I-023/0

LSH 138A LSH 138B

LSH 138C

MH 38

SEQ L LAH 137 / UC 1

I-011/15

SEQ L LAH 136 / UC 1

I-011/14

2"/6"UWC-PPI-300

2"/6"UWC-PPI-303

2"/6"UWC-PPI-302

CH171-2"

TE-2"/6"WCC-MD-127

TE-3"/4"WCC-MD-128

MH 40 SHEET5

LSH 137A LSH 137B

MH 37

LSH 136A LSH 136B

MH 36

TE-2"/6"WCC-MD-126

LEACHATE STORAGE TANKS SHEET 16

PW-1U SHEET 6

MH-53 SHEET 13

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

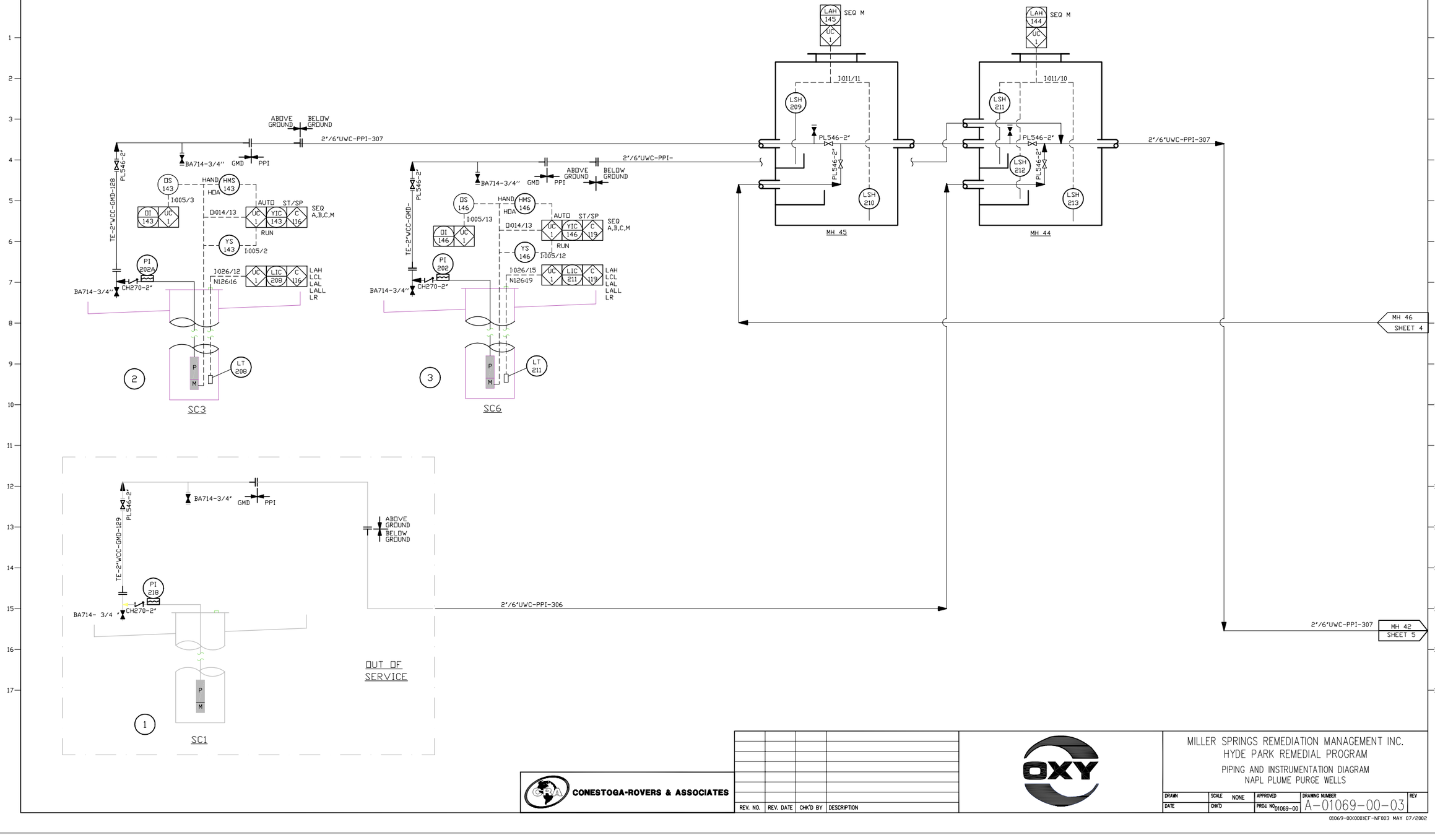
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ NO 01069-00	A-01069-00-02	

01069-00C000)EF-NF002 MAY 07/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		–	P-143	P-146																				
NAME		SOURCE CONTROL PURGE WELL PUMP 1	SOURCE CONTROL PURGE WELL PUMP 2	SOURCE CONTROL PURGE WELL PUMP 6																				
DESCRIPTION	MATERIAL	OUT OF SERVICE	SS	SS																				
	SIZE		–	–																				
	CAPACITY		5 GPM	5 GPM																				
	TEMP/PRESS		–	–																				
	HP/V/RPM		1/460/3600	1/460/3600																				
	WEIGHT		–	–																				
	MANUFACTURE		GRUNDFOS	GRUNDFOS																				
	MODEL		10E11	10E11																				
	VENDOR		–	–																				



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

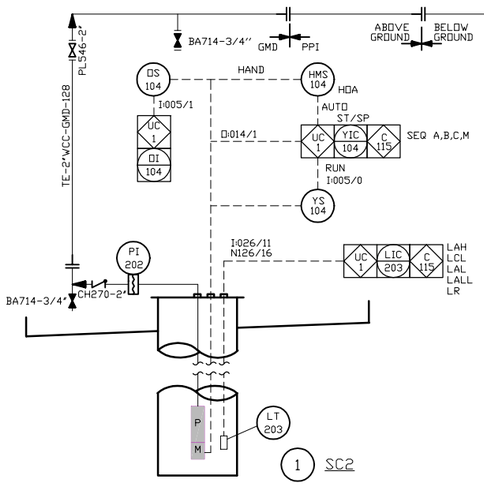
CONESTOGA-ROVERS & ASSOCIATES

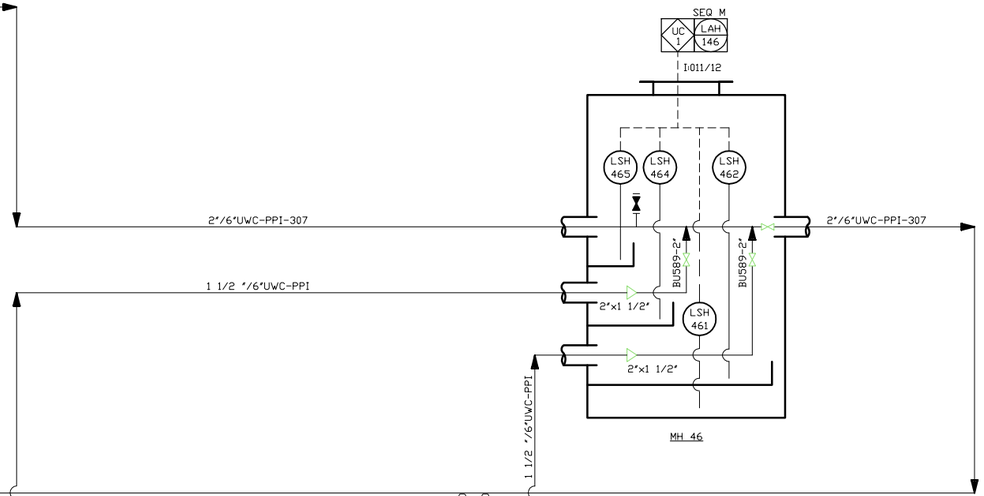
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM
PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

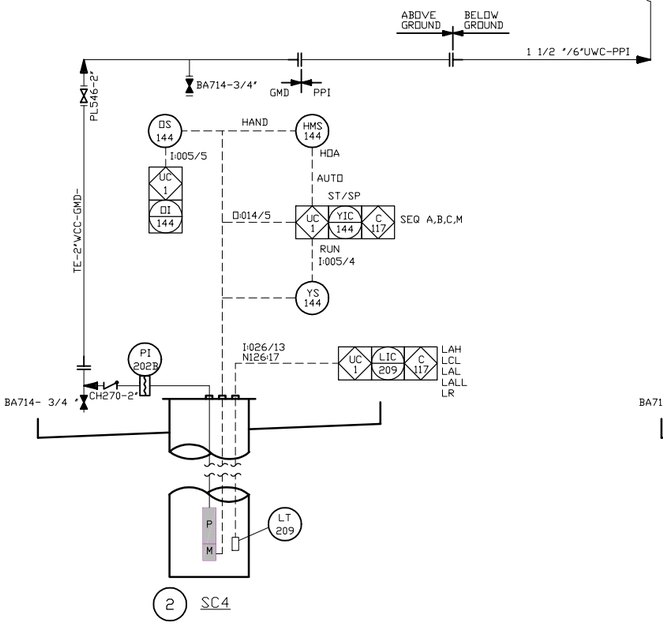
DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ NO. 01069-00	A-01069-00-03	

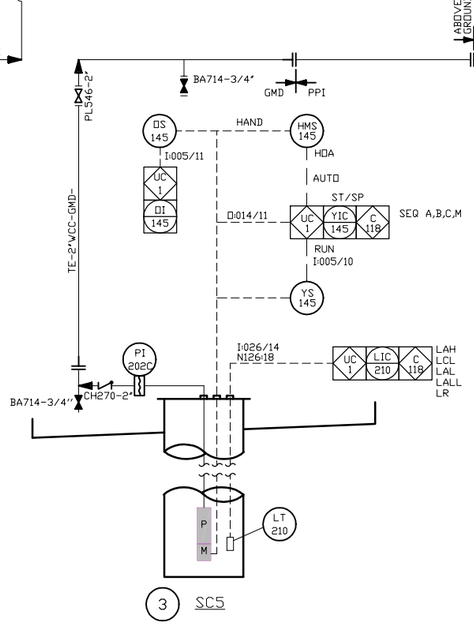
01069-00(000)EF-NF003 MAY 07/2002

PLANT ID.	P-104 (1)	P-144 (2)	P-145 (3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	SOURCE CONTROL PURGE WELL PUMP 2	SOURCE CONTROL PURGE WELL PUMP 4	SOURCE CONTROL PURGE WELL PUMP 5																				
DESCRIPTION MATERIAL	SS	SS	SS																				
DESCRIPTION SIZE	-	-	-																				
DESCRIPTION CAPACITY	5 GPM	5 GPM	5 GPM																				
DESCRIPTION TEMP/PRESS	-	-	-																				
DESCRIPTION HP/V/RPM	1/460/3600	1/460/3600	1/460/3600																				
DESCRIPTION WEIGHT	-	-	-																				
DESCRIPTION MANUFACTURE	PROTEC	GRUNDFOS	GRUNDFOS																				
DESCRIPTION MODEL	-	10E11	10E11																				
DESCRIPTION VENDOR	-	-	-																				









REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-04	

01069-00(000)EF-NF004 MAY 07/2002

PLANT ID.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME																							
DESCRIPTION: MATERIAL																							
SIZE																							
CAPACITY																							
TEMP/PRESS																							
HP/V/RPM																							
WEIGHT																							
MANUFACTURE																							
MODEL																							
VENDOR																							

WET WELL B
SHEET 1

2"/6"UWC-PPI-

WET WELL D
SHEET 1

2"/6"UWC-PPI-301

TE-2"WCC-MD-205

TE-2"/4"WCC-MD-129

TE-4"/6"WCC-MD-124

TE-4"/6"WCC-MD-124

DECANTERS
SHEET 15

DECANTERS
SHEET 15

DECANTERS
SHEET 15

DECANTER NO.1
SHEET 15

PW-2UR
SHEET 7

DECANTERS
SHEET 2

TE-3"/4"WCC-MD-128

PI 358
BA-3/4"
BA-3/4"
TE-2"WCC-MD-122
<1"CeGl>
PL
-2"

UC 1 | FI 359 | FQI 359
FR
I:025/9
N125:13

FIT 359
PL546-2"
PL546-1"

TE-2"/3"WCC -MD-122

4"/8"UWC -PPI-304

4"/8"UWC -PPI-304

CH171-3"

4"/8"UWC -PPI-308

4"/8"UWC -PPI-308

ABOVE GROUND
UNDER GROUND

8"UWC-PPI-

2"UWC -PPI-307

8"UWC-PPI-

2"UWC-PPI-

SEQ M
LAH 140
UC 1
I:011/13

LSH 140

LAH 141 | SEQ M | UC 1
I:011/7

LSH 141A

LSH 141B

LAH 142 | SEQ M | UC 1
I:023/3

LSH 142B

LSH 142A

LSH 142C

LAH 143 | SEQ M | UC 1
I:023/4

LSH 143 C

LSH 143 A

LSH 143 E

BU730-4"

LSH 143 B

LSH 143 D

LAH 147 | SEQ M | UC 1
I:023/6

LSH 147 A

LSH 147B

LAH 148 | SEQ M | UC 1
I:023/10

LSH 148 C

LSH 148 A

LSH 148 B

LSH 148D

BU730-4"

TE-2"WCC-MD-205
<1"CeGl>
PL546-2"
PL546-2"
PL546-1"

FIT 367

I:027/14
N127:18

UC 1 | FI 367 | FQI 367
FR

2"/6"UWC-PPI-307

MH 40

MH 41

MH 42

MH 43

MH 47

MH 48

MH 44
SHEET 3

2"/6"UWC-PPI-307

2"/6"UWC-PPI-307

4"/8"UWC-PPI-309

MH 49
SHEET 9

3"/8"UWC-PPI-308

PW-2M
SHEET 8

2"/6"UWC-PPI-

PW-2L
SHEET 6

CONESTOGA-ROVERS & ASSOCIATES

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

OXY

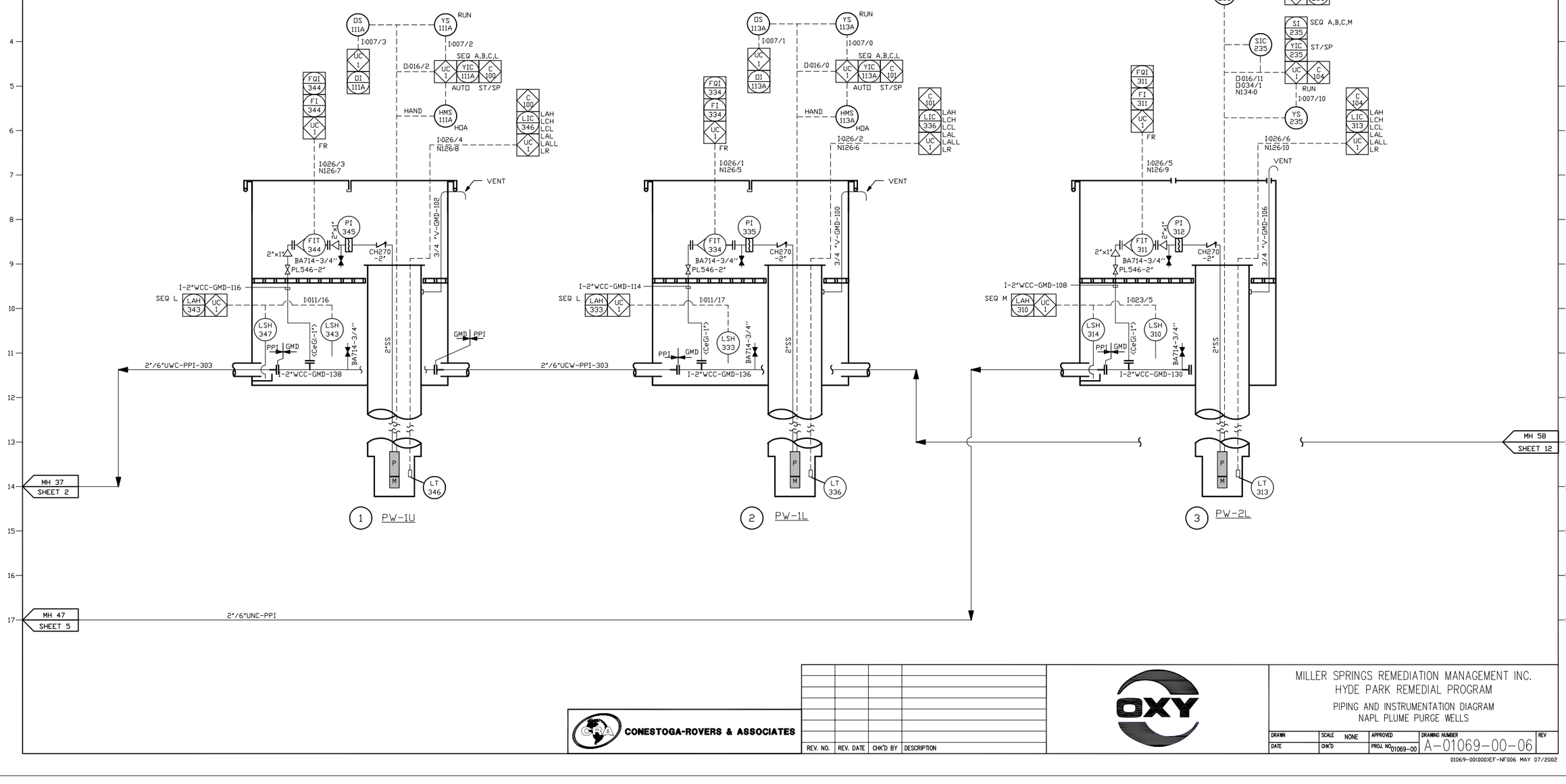
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-05	

01069-00(000)EF-NF005 MAY 07/2002

PLANT ID.	P-111A (1)	P-113A (2)	P-116 (3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	NAPL PURGE WELL PUMP 1U	NAPL PURGE WELL PUMP 1L	NAPL PURGE WELL PUMP 2L																				
DESCRIPTION: MATERIAL	SS	SS	SS																				
SIZE	–	–	–																				
CAPACITY	10 GPM @ 131'	14 GPM @ 192'	3 GPM @ 183'																				
TEMP/PRESS	–	–	–																				
HP/V/RPM	1/460/3600	3/460/3600	1/460/3600																				
WEIGHT	–	–	–																				
MANUFACTURE	GRUNDFOS	GRUNDFOS	GRUNDFOS																				
MODEL	10E-8	25E8	5E8																				
VENDOR	–	–	–																				



CONESTOGA-ROVERS & ASSOCIATES

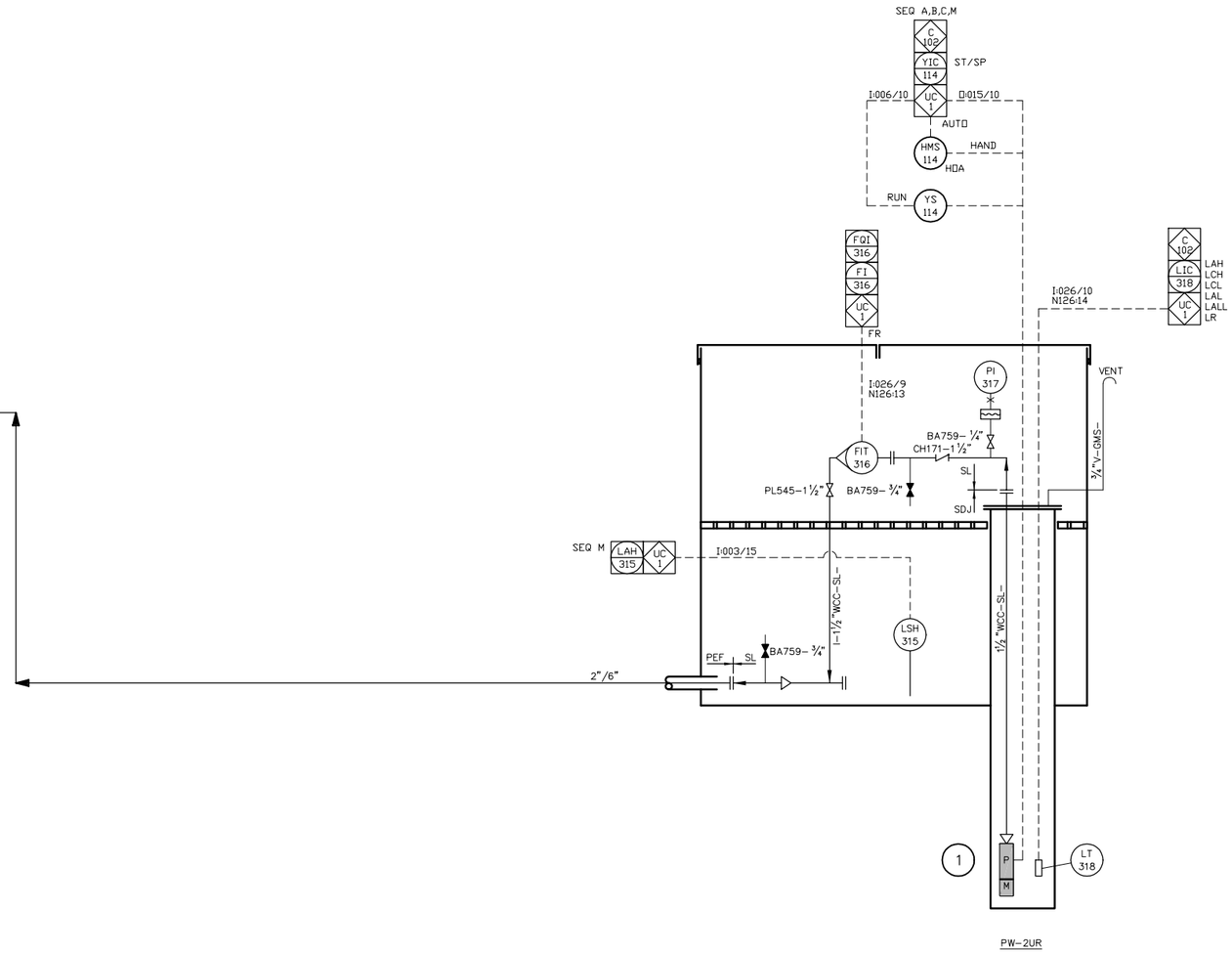
REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ NO. 01069-00	A-01069-00-06	

PLANT ID.	P-114	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME	PW-2UR WELL PUMP																							
DESCRIPTION: MATERIAL	SS																							
SIZE	1 1/4"																							
CAPACITY	5 GPM @ 93' H																							
TEMP/PRESS	–																							
HP/V/RPM	0.5/230/3450																							
WEIGHT	–																							
MANUFACTURE	GRUNDFOS																							
MODEL	10E8																							
VENDOR	–																							



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

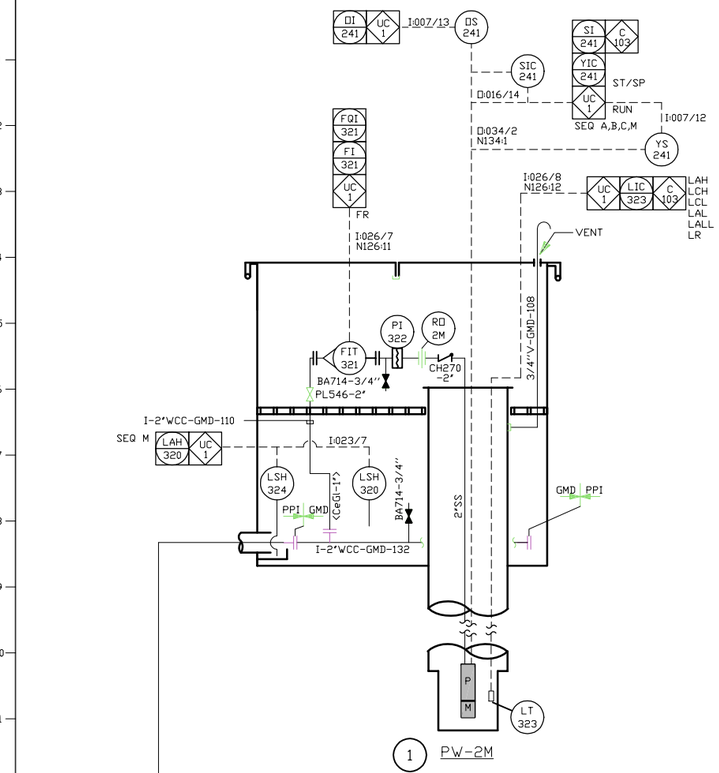
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

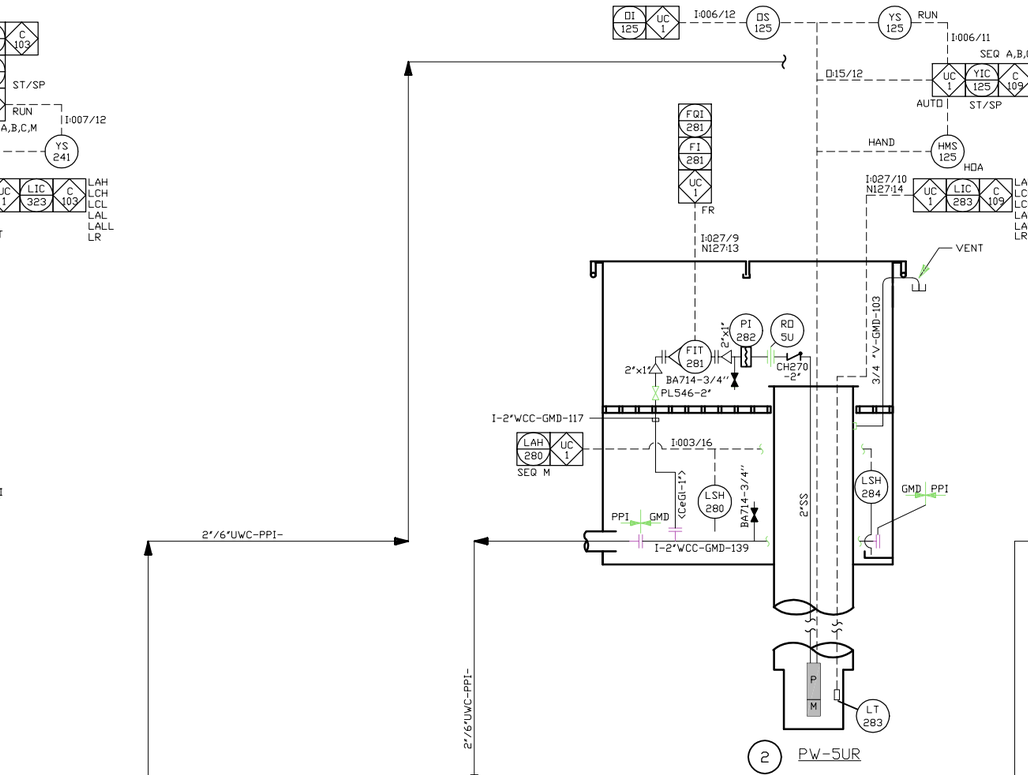
PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

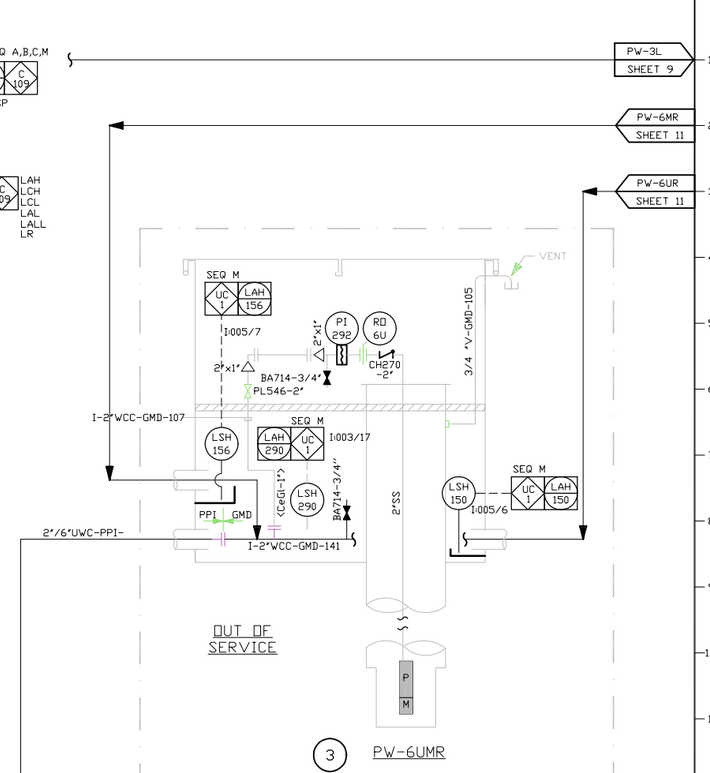
DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-07	

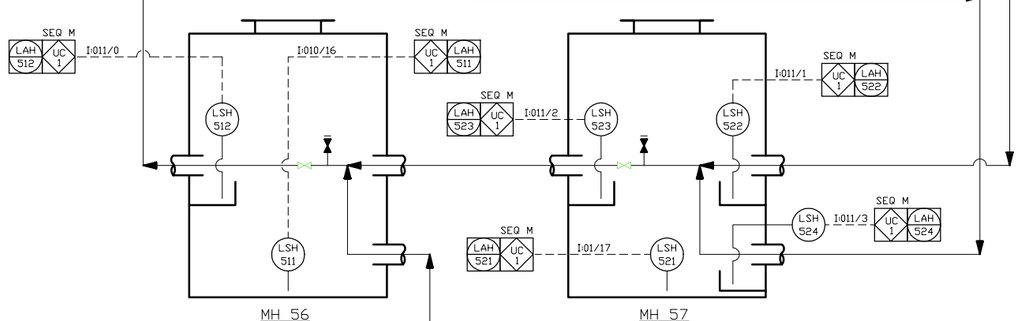
01069-00(000)EF-NF007 MAY 07/2002

	PLANT ID.	P-115 (1)	P-125 (2)	- (3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
	NAME	NAPL PURGE WELL PUMP 2M	NAPL PURGE WELL PUMP 5UR	NAPL PURGE WELL PUMP 6U																				
DESCRIPTION	MATERIAL	SS	SS	OUT OF SERVICE																				
	SIZE	-	-																					
	CAPACITY	30 GPM @ 168'	8 GPM @ 165'																					
	TEMP/PRESS	-	-																					
	HP/V/RPM	3/460/3600	1/460/3600																					
	WEIGHT	-	-																					
	MANUFACTURE	GRUNDFOS	GRUNDFOS																					
	MODEL	40S309	10E8																					
	VENDOR	-	-																					









REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

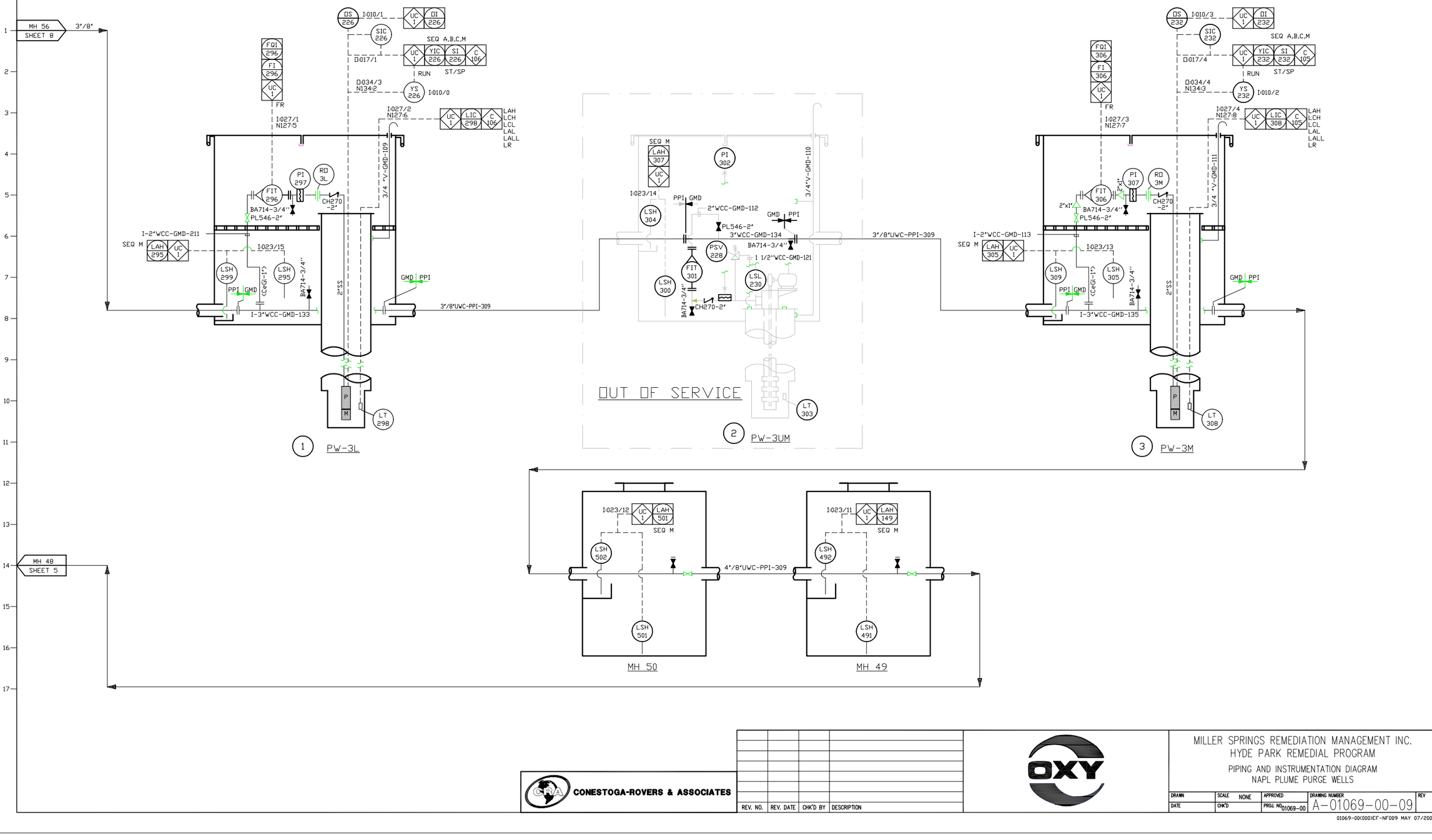
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-08	

01069-00(000)EF-NF008 MAY 07/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		P-123	-	P-122																				
NAME		NAPL PURGE WELL PUMP 3L	NAPL PURGE WELL PUMP 3UM	NAPL PURGE WELL PUMP 3M																				
DESCRIPTION	MATERIAL	SS	OUT OF SERVICE	SS																				
	SIZE	-		-																				
	CAPACITY	19 GPM @ 214'		5 GPM @ 189'																				
	TEMP/PRESS	-		-																				
	HP/V/RPM	3/460/3600		1/460/3600																				
	WEIGHT	-		-																				
	MANUFACTURE	GRUNDFOS		GRUNDFOS																				
	MODEL	16E13		10E11																				
	VENDOR	-		-																				



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

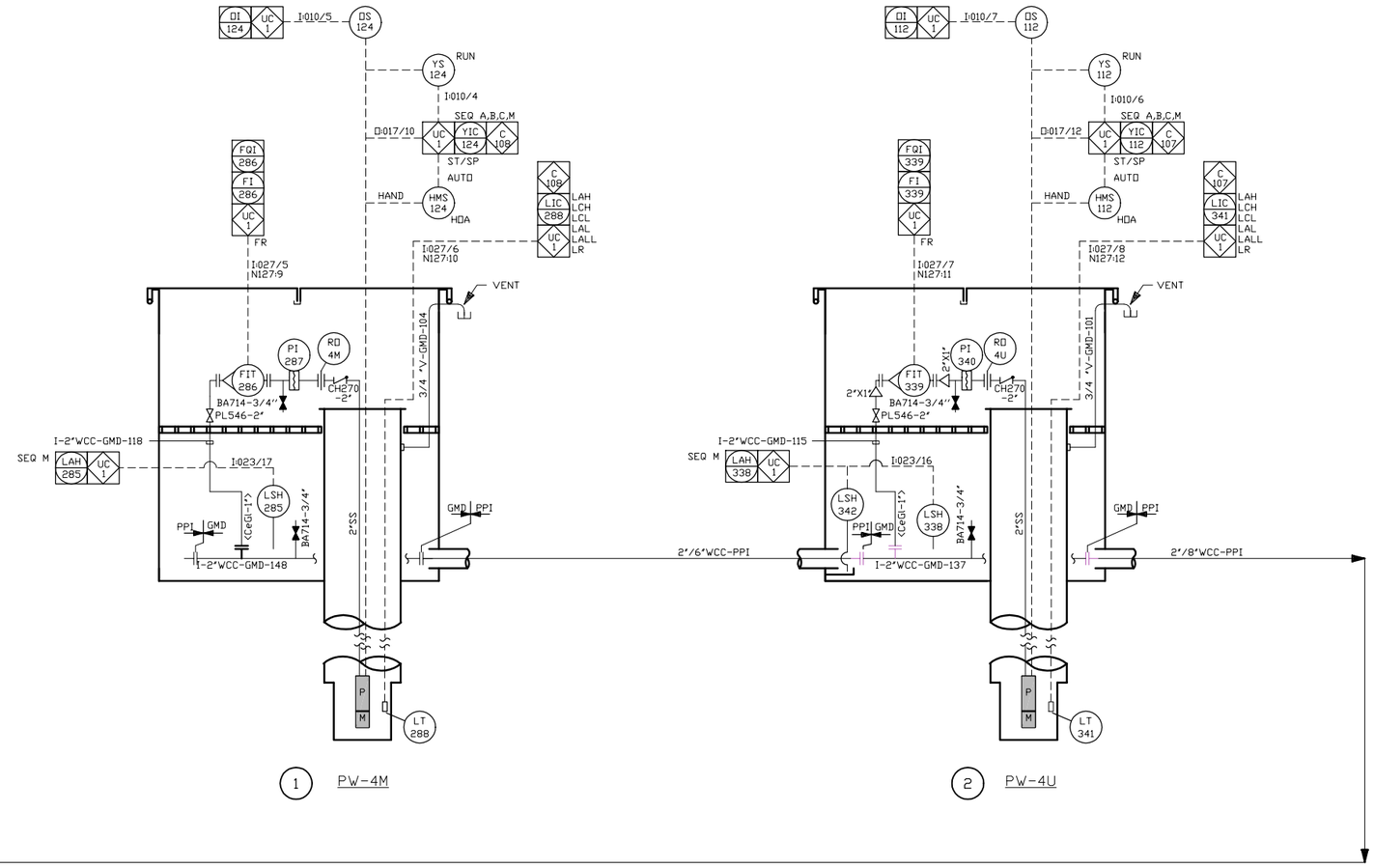
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-09	

01069-00(000)EF-NF009 MAY 07/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		P-124	P-112																					
NAME		NAPL PURGE WELL PUMP 4M	NAPL PURGE WELL PUMP 4U																					
DESCRIPTION	MATERIAL	SS	SS																					
	SIZE	–	–																					
	CAPACITY	5 GPM @ 184'	11 GPM @ 119'																					
	TEMP/PRESS	–	–																					
	HP/V/RPM	1/460/3600	1/460/3600																					
	WEIGHT	–	–																					
	MANUFACTURE	GRUNDFOS	GRUNDFOS																					
	MODEL	10E8	10E8																					
	VENDOR	–	–																					



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

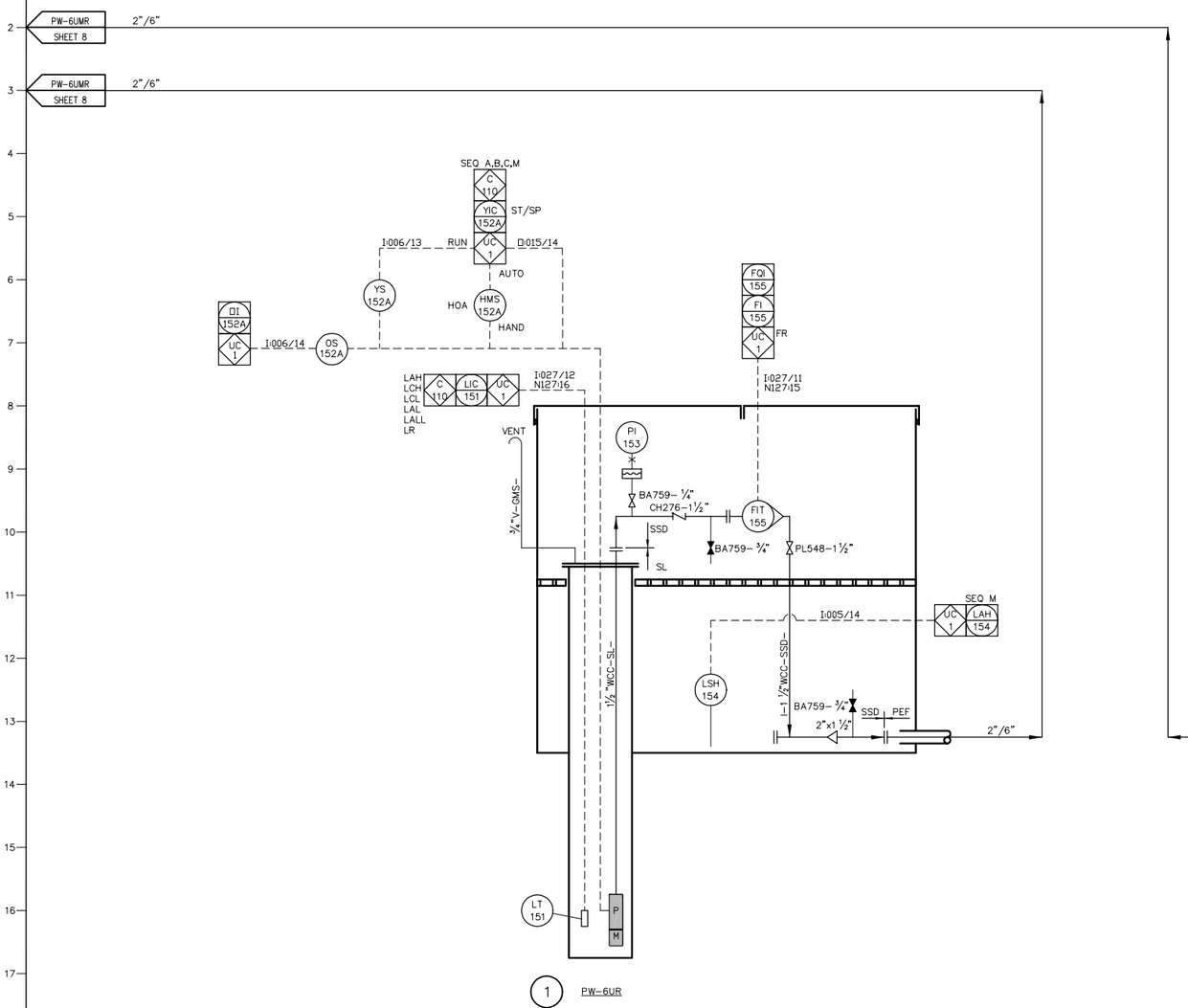
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ NO. 01069-00	A-01069-00-10	

01069-00(000)EF-NF010 MAY 07/2002

PLANT ID.		P-152A (1)	P-152B (2)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME		NAPL PURGE WELL PUMP 6UR	NAPL PURGE WELL PUMP 6MR																					
DESCRIPTION	MATERIAL	SS	SS																					
	SIZE	1 1/4"	1 1/2"																					
	CAPACITY	5 GPM	10 GPM																					
	TEMP/PRESS	–	–																					
	HP/V/RPM	0.5/460/3450	1.5/460/3450																					
	WEIGHT	–	–																					
	MANUFACTURE	GRUNDFOS	GRUNDFOS																					
	MODEL	10E8	25E8																					
	VENDOR	–	–																					



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-11	

01069-00(000)EF-NF011 MAY 07/2002

PLANT ID.	P-234	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME	NAPL PURGE WELL PUMP 7U																							
DESCRIPTION: MATERIAL	SS																							
SIZE	1"																							
CAPACITY	6 gpm @220'																							
TEMP/PRESS	–																							
HP/V/RPM	2/230/3500																							
WEIGHT	35																							
MANUFACTURE	GRUNDFOS																							
MODEL	5E21																							
VENDOR	–																							

SEQ L
LAH 581
UC 1
I:002/6
LSH 581
MH 58
PW-1L SHEET 6
FQI 170
FI 170 FR
UC 1
UC 7
FIT 170
PI 171
BA761- ¼" CH276-2"
BA761-¾"
PL548-2"
UC 7
3/4 "V-GMD-
UC 1 LIC 172 C 112 LAH LCH LCL LAL LALL LR
LAH 344 UC 1
SEQ L
UC 7
LSH 344
<Cell-1">
PPI SSD
BA761-¾"
2"WCC-SDD-
P
M
LT 172
1
PW-7U
SIC 234
HS 234 HOA
UC 7
C 112
YA 234
SIC 234
YIC 234 ST/SP
UC 1
SEQ A,B,C,L

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

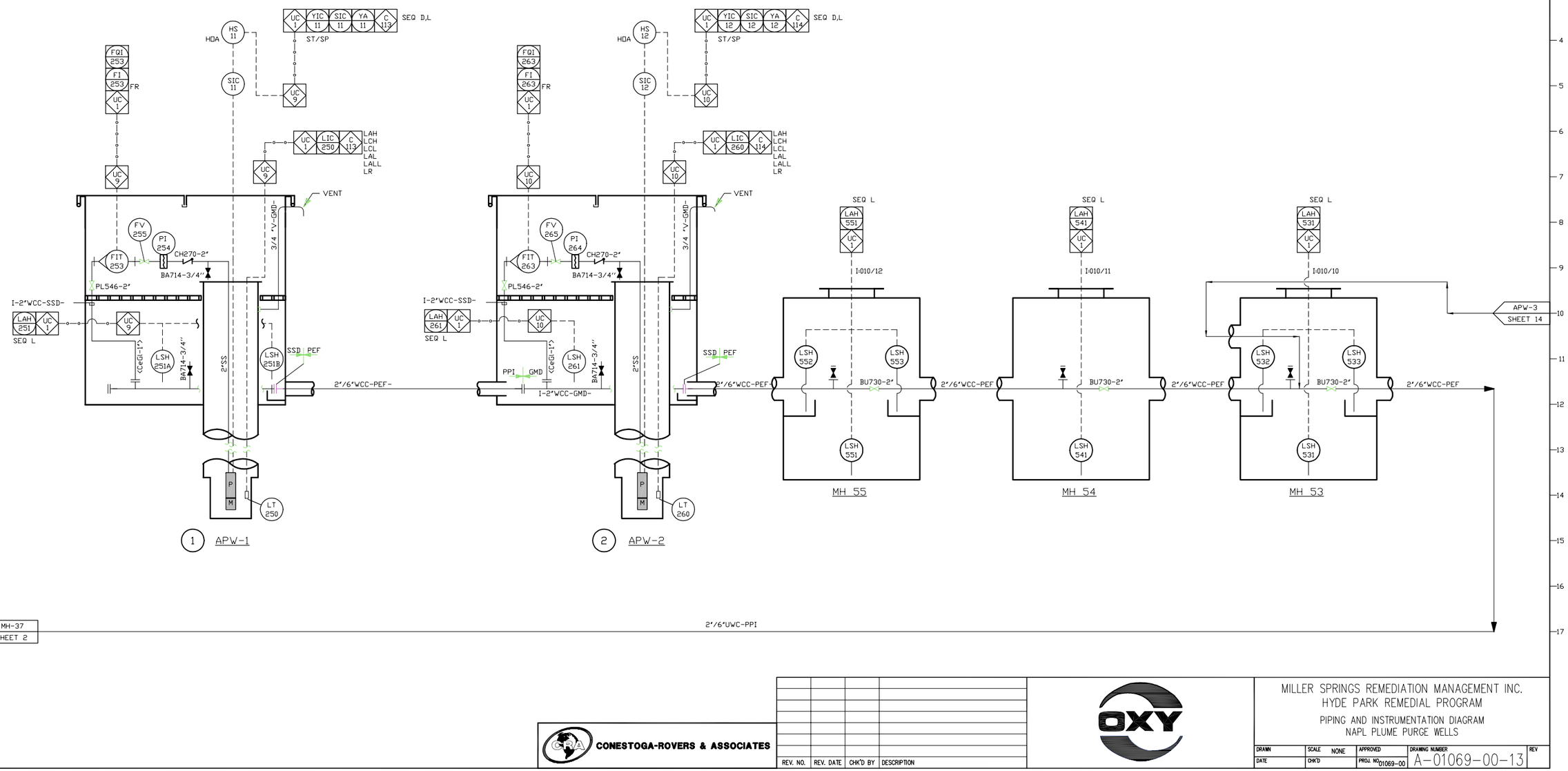
CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM
PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-12	

01069-00(000)EF-NF012 MAY 07/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		P-11A	P-12																					
NAME		APL PURGE WELL PUMP 1	APL PURGE WELL PUMP 2																					
DESCRIPTION	MATERIAL	SS	SS																					
	SIZE	–	–																					
	CAPACITY	7.5 GPM @ 171'	7.5 GPM @ 170'																					
	TEMP/PRESS	–	–																					
	HP/V/RPM	2/460/1800	2/460/1800																					
	WEIGHT	–	–																					
	MANUFACTURE	GRUNDFOS	GRUNDFOS																					
	MODEL	10E11	10E11																					
	VENDOR	–	–																					



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

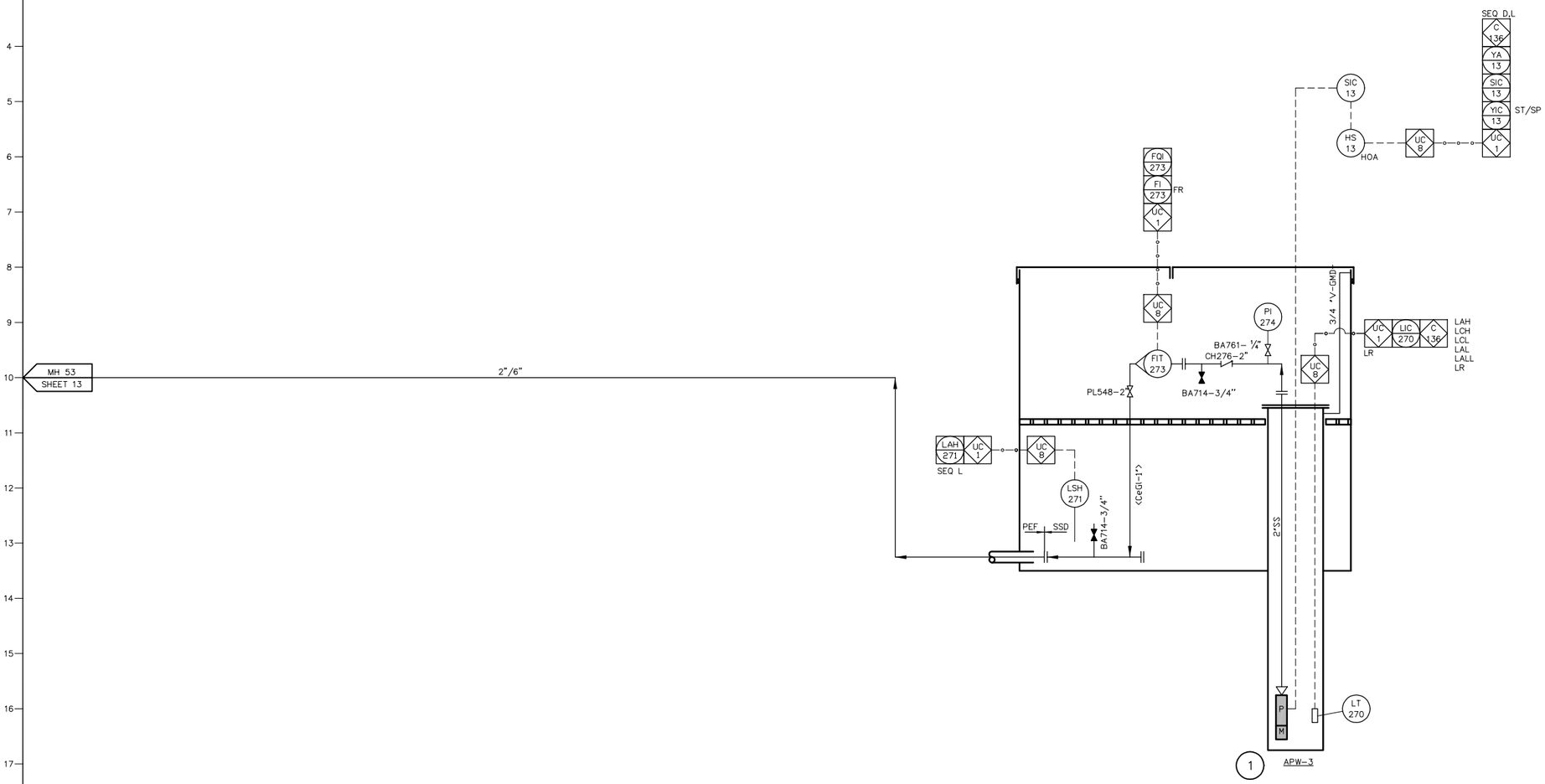
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-13	

01069-00(0003)EF-NF013 MAY 07/2002

PLANT ID.	P-13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME	APL PURGE WELL PUMP 3																							
DESCRIPTION: MATERIAL	SS																							
SIZE	1"																							
CAPACITY	5 gpm @ 170'																							
TEMP/PRESS	–																							
HP/V/RPM	2/230/3500																							
WEIGHT	32																							
MANUFACTURE	GRUNDFOS																							
MODEL	5E17																							
VENDOR	–																							



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

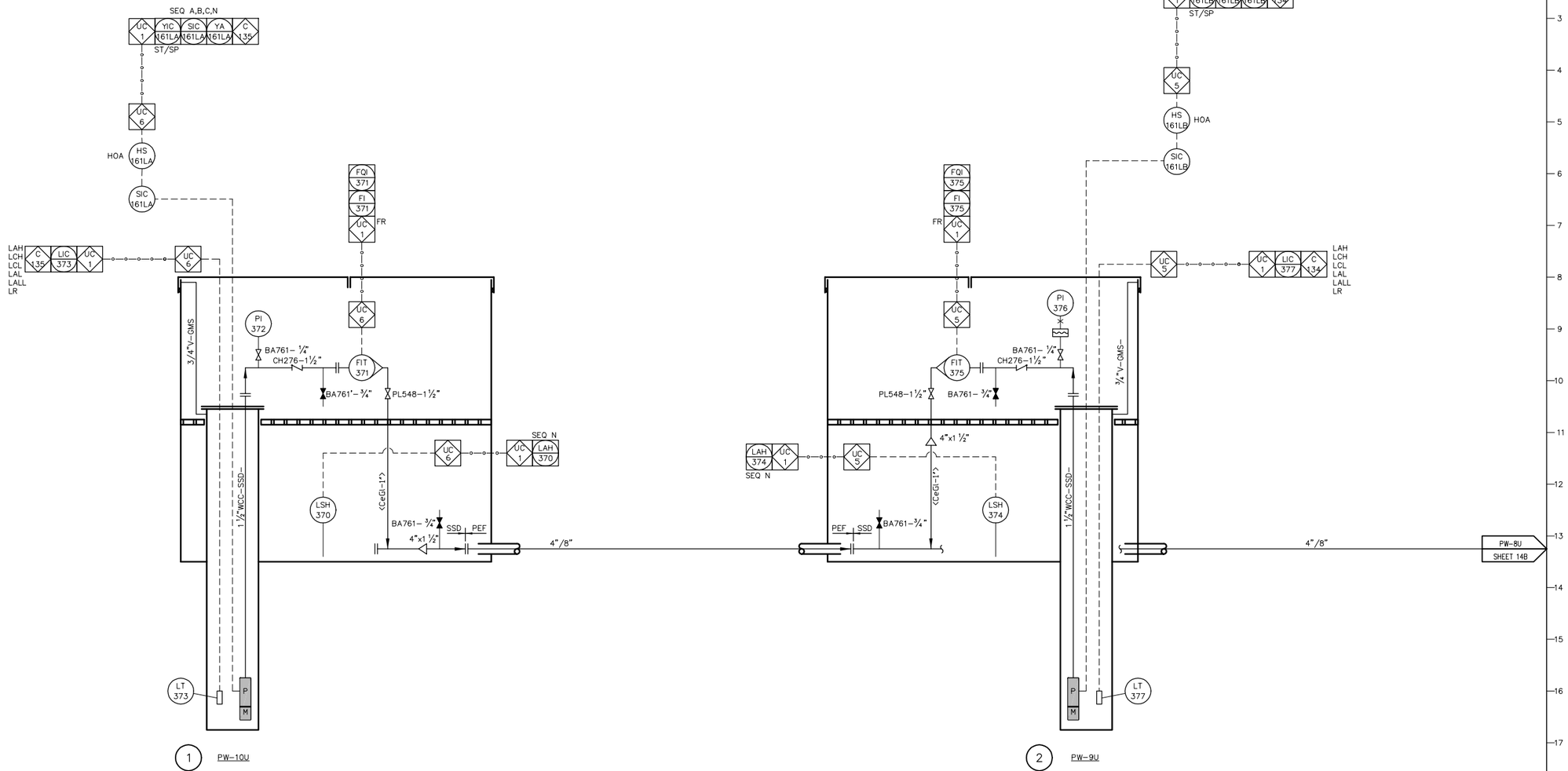
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-14	

01069-00(000)EF-NF035 MAY 07/2002

PLANT ID.		P-231A (1)	P-231B (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME		NAPL PURGE WELL PW-10U	NAPL PURGE WELL PW-9U																					
DESCRIPTION	MATERIAL	SS	SS																					
	SIZE	1"	1"																					
	CAPACITY	3.59 gpm @ 100'	3.5 gpm @ 110'																					
	TEMP/PRESS	–	–																					
	HP/V/RPM	2/230/3500	2/230/3500																					
	WEIGHT	28	28																					
	MANUFACTURE	GRUNDFOS	GRUNDFOS																					
	MODEL	5E8	5E8																					
	VENDOR	–	–																					



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

OXY

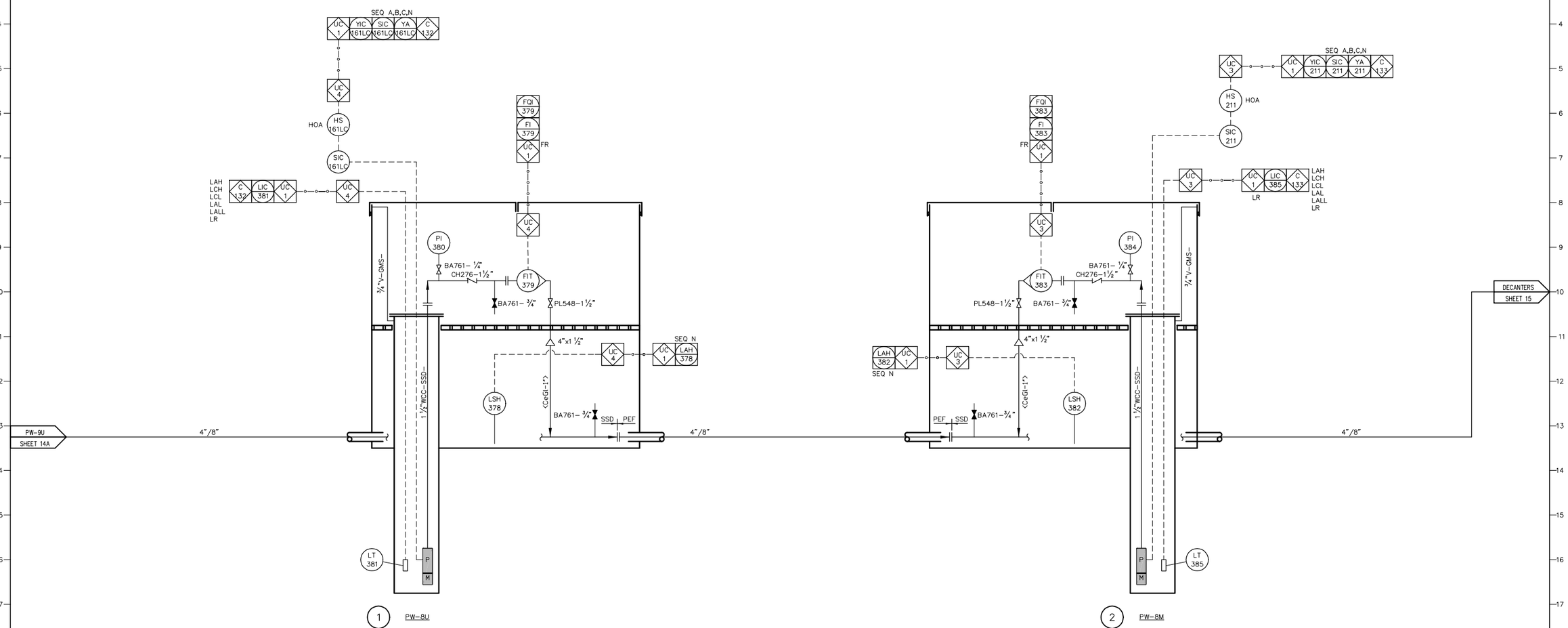
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-14A	

01069-00(000)EF-NF036 MAY 07/2002

PLANT ID.		P-161LC (1)	P-211 (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME		NAPL PURGE WELL PW-8U	NAPL PURGE WELL PW-8M																					
DESCRIPTION	MATERIAL	SS	SS																					
	SIZE	1"	1-1/4"																					
	CAPACITY	4 gpm @ 110'	8 gpm @ 190'																					
	TEMP/PRESS	–	–																					
	HP/V/RPM	2/230/3500	2/230/3500																					
	WEIGHT	28	28																					
	MANUFACTURE	GRUNDFOS	GRUNDFOS																					
	MODEL	5E8	10E8																					
	VENDOR	–	–																					



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
NAPL PLUME PURGE WELLS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-14B	

01069-00(000)EF-NF037 MAY 07/2002

PLANT ID.		HP-03 (1)	HP-04 (2)	HP-05 (3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME		LOCKPORT BEDROCK No. 1 DECANTER	OBCS No. 2 DECANTER	SOURCE CONTROL WELLS No. 3 DECANTER																				
DESCRIPTION	MATERIAL	CS	CS	CS																				
	SIZE	8' DIA. x 32' H	8' DIA. x 32' H	8' DIA. x 32' H																				
	CAPACITY	11,200 GAL.	11,200 GAL.	11,200 GAL.																				
	TEMP/PRESS	–	–	–																				
	HP/V/RPM	–	–	–																				
	WEIGHT	–	–	–																				
	MANUFACTURE	–	–	–																				
	MODEL	–	–	–																				
	VENDOR	–	–	–																				

WET WELL A SHEET 1 — TE-2"WCC-MD-100
SOURCE WELLS SHEET 5 — TE-2"WCC-MD-205 (1" CeGl)
WET WELL B SHEET 5 — TE-2"WCC-MD-100 (1" CeGl)
WET WELL D SHEET 5 — TE-2"WCC-MD-122
NAPL PURGE WELLS SHEET 2 — TE-4"WCC-MD-204 (1½" CeGL)
WET WELL C SHEET 2 — TE-2"WCC-MD-123
RW-3UM SHEET 5 — TE-4"WCC-MD-124 — BU589-4" — TE-4"WCC-MD-276 (1½" CeGl)

TO TRAILER — PI 109

TE-2"WWL-EPO-261 → DIKE SUMP SHEET 16
TE B — B-2"WWL-EPO-274 → BACKWASH TANK SHEET 24

TE-1½"WCC-MD-112 (1" CeGl)
TE-2"WCC-MD-205 (½" CeGl)
TE-2"WCC-MD-203
TE-2"WCC-MD-106 (1" CeGl)
TE-2"WCC-MD-202
MD VE PL630-2"

TE-4"WCC-MD-211 → No. 1 STORAGE SHEET 16
TE-4"WCC-MD-212 → No. 1 STORAGE SHEET 16
TE-4"WCC-MD-210 → No. 1 STORAGE SHEET 16
TE-4"V-MD-210 → TANK VENT SHEET 16

PW-8M SHEET 14B

BU589-4" (×2)
TE-3"V-MD-204 (½" (1" CeGl)
TE-4"WCC-MD-204

PSV 102 — SEQ A,B,C,J,K — LAHH 102 — UC 1 — I:000/0
LSHH 102
B-30" — G-3" — Q-3" — P-4" — R-3" — J-4" — M-4" — H-4" — E-2" — D-2" — C-2" — F-2" — L-3" — K-3" — N-30" — A-3"
TP 103 — TE-4"WCC-MD-211 (1½" CeGl) — SG 101 — TP 104
PL618-3" — BU589-4" — BU589-6"
SEQ A,B,C,J,K — LI 101 — LAHH — LALL — UC 1 — LBQ LR — I:024/12 N124:16
TISH 109 — TE (2" CeGl) — TW 102 — TI 102
LI 101 — LT 101 — PL618-3" — BA714-1" — ¾"
1

TE-4"WCC-MD-277 (1½" CeGl)
PL546-2"
PSV 104 — SEQ A,B,C,J,K — LAHH 104 — UC 1 — I:000/1
LSHH 104
TE-4"WCC-MD-212 (1½" CeGl)
TP 107 — TE-4"WCC-MD-212 (1½" CeGl) — SG 102 — TP 108
SEQ A,B,C,J,K — LI 102 — LAHH — LALL — UC 1 — LBQ LR — I:024/10 N124:14
TISH 109 — TE (2" CeGl) — TW 104 — TI 104
LI 103 — LT 103 — PL618-3" — BA714-1" — ¾"
2

MD VE PL618-2"
TE-2"WCC-MD-105 (1"CeGl)
PL618-2"
SAMPLE VALVE — 2"x1"
PI 105 — BA795-1" — BA795-½"
GA110-1"

TE-3"V-MD-205 (½" CeGl)
TP 151
PL546-2"
TE-4"WCC-MD-278 (1½" CeGl)
PSV 106 — SEQ A,B,C,J,K — LAHH 106 — UC 1 — I:000/2
LSHH 106
TE-4"WCC-MD-210 (1½" CeGl)
TP 111 — SG 103 — 4"x6" — TP 112
SEQ A,B,C,J,K — LI 105 — LAHH — LALL — UC 1 — LBQ LR — I:024/5 N124:9
TISH 109 — TE (2" CeGl) — TW 106 — TI 106
LI 105 — LT 105 — PL618-3" — BA714-1" — ¾"
3

TE-3"WCC-MD-201 (1½" CeGl)
TE-4"WCC-MD-208 (1½" CeGl)
TE-4"WCC-MD-209 (1½" CeGl)
TE-4"WCC-MD-104 (1½" CeGl)
TE-4"WCC-MD-103 (1½" CeGl)

TE-6"WCC-MD-206 → No. 2 STORAGE SHEET 16
TE-4"WCC-MD-104 → No. 2 STORAGE SHEET 16
TE-4"WCC-MD-208 → No. 2 STORAGE SHEET 16
TE-6"WCC-MD-207 → No. 1 STORAGE SHEET 16
TE-4"WCC-MD-103 → No. 1 STORAGE SHEET 16
TE-4"WCC-MD-209 → No. 1 STORAGE SHEET 16

CONESTOGA-ROVERS & ASSOCIATES

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

OXY

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM
PIPING AND INSTRUMENTATION DIAGRAM
LEACHATE DECANTERS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-15	

01069-00(000)EF-NF015 MAY 07/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		HP-01	HP-02	–	P-133	–																		
NAME		LEACHATE STORAGE TANK No. 1	LEACHATE STORAGE TANK No. 2	TANK VENT ADSORBERS NITOX N-1000	LEACHATE RECYCLE PUMP	LEACHATE RECYCLE PUMP STRAINER																		
DESCRIPTION	MATERIAL	CS/VINYLESTER	CS/VINYLESTER	CARBON	CD4M	CS/SST																		
	SIZE	30' DIA. x 32' H	30' DIA. x 32' H	–	3x3 – 10"(10)	4"–150# FLG																		
	CAPACITY	158,000 GAL.	158,000 GAL.	60CFM @ 1/2"H_2O	180 GPM @ 70' H	–																		
	TEMP/PRESS	–	–	–	–	–																		
	HP/V/RPM	–	–	–	10/460/1750	–																		
	WEIGHT	52,724 LBS.	53,302 LBS.	545 LBS.	–	–																		
	MANUFACTURE	BROWN BOILER	BROWN BOILER	TIGG CORP.	GOULDS	HAYWARD																		
	MODEL	–	–	NITOX N-1000	3796	MODEL 72																		
	VENDOR	–	–	–	–	–																		

DECANTER SHEET 15 TE-2"WCC-EPO-261

TE-2"WWL-EPO-261 <1"CeGL>

DI549-2"

3"x2"

BU589-2"

TE-2"WWC-MD-275

DIKE SUMP SHEET 27

TE-1½"WCC-MD-112 <1"CeGL>

PL546-1½"

TE-1½"WWC-MD-112

DIKE SUMP SHEET 27

STG. DIKE SUMP SHEET 18

PL546-½"

TE-4"WCC-MD-211 <1½"CeGL>

TE-4"V-MD-210 <1½"CeGL>

TE-4"V-MD-102 <1½"CeGL>

TE-4"V-MD-106 <1½"CeGL>

No.1 DECANTER SHEET 15 TE-4"WCC-MD-211

No.2 DECANTER SHEET 15 TE-4"WCC-MD-212

No.3 DECANTER SHEET 15 TE-4"WCC-MD-210

VENT SHEET 15 TE-4"V-MD-210

TE-2"WCC-MD-125 <1"CeGL>

SEQ A,B,C,D,J,K

TISH 108

PSV 108

LSHH 108

UC 1

LAHH 108

I:003/4

<2' CeGL> TE

K-30'

Q-6'

R-3'

W-8'

X-2'

M-4'

U-4'

V-4'

P-4'

TE-2"WCC-MD-125

TE-4"WCC-MD-210 <1½"CeGL>

4"x6"

G-2'

F-4'

D-4'

E-4'

C-4'

B-6"V-VE-100

TE-4"V-MD-101 <1½"CeGL>

TE-4"V-MD-105 <1½"CeGL>

TE-4"V-MD-210

BU589-2"

BA714-½"

PI 107

TEST POINT 1½"COUPLING & PLUG

PI 104

PI 105

BA714-½"

PI 109

TW 109

T-1 1/2"

TI 109

TP 113

TP 109

TP 105

VINYLESTER COATED STEEL

L-30' (2)

1

NO.1

J-4'

GA210-4"

TE-6"WCC MD-107 <1½"CeGL>

B-4'

A-4'

TE-6"WCC MD-108 <1½"CeGL>

N-4'

S-3'

H-3'

LT 107

PL546-3"

GA210-3"

PL546-1"

LAHH LAH LAL LALL LBQ LR

LI 107

UC 1

I:024/1

N124:5 SEQ A,B,C,D,J,K

TE-6"WCC-MD-207 <1½"CeGL>

TE-4"WCC-MD-103 <1½"CeGL>

TE-4"WCC-MD-209 <1½"CeGL>

3

PI 104

PI 105

TE-2"WCC-MD-126 <1"CeGL>

4"x6"

BU589-2"

F-2'

G-2'

D-4'

E-4'

C-4'

TP 114

TP 110

TP 106

VINYLESTER COATED STEEL

L-30' (2)

2

NO.2

P-4'

TW 112

T-1 1/2"

TI 112

J-4'

GA210-4"

TE-6"WCC MD-109 <1½"CeGL>

B-4'

A-4'

TE-6"WCC MD-110 <1½"CeGL>

N-4'

S-3'

H-3'

LT 109

PL546-3"

GA210-3"

PL546-1"

LAHH LAH LAL LALL LBQ LR

LI 109

UC 1

I:024/2

N124:6 SEQ A,B,C,D,J,K

TE-6"CC-MD-206 <1 1/2"CeGL>

TE-4"WCC-MD-104 <1½"CeGL>

TE-4"WCC-MD-208 <1½"CeGL>

TE-4"V-MD-102 <1½"CeGL>

SEQ A,B,C,D,J,K

LAHH 110

UC 1

I:003/5

TISH 111

PSV 110

LSHH 110

<2' CeGL> TE

K-30'

Q-8'

R-3'

U-8'

M-4'

TE-4"WCC-MD-110 <1½"CeGL>

B-6"V-VE-101

PL546-4"

5

SAMPLE VALVE

3"x1"

3"x1½"

PL546-3"

PI 110

BA714-1"

BA714-½"

CH270-3"

YIC 133

I:003/3

UC 1

ST/SP

0:012/2

YS 133

RUN

AUTO

HOA

HAND

HMS 133

4"x3"

GA110-1"

133

4

PL 133

G

SEQ E

YIC 950

UC 1

I:004/7

I:004/15

OP/CL

0:012/6

AS

UY 950

ZSHL 950

UV 950

S

F.C.

4"x6"

UY 940

0:012/5

UC 1

YIC 940

SEQ E

ZSHL 940

I:004/5

I:004/6

TE-6"WCC-MD-108 <1½"CeGL>

APL PURGE WELLS SHEET 2 TE-2"WCC-MD-126

TE-2"WCC-MD-126 <1"CeGL>

No.3 DECANTER SHEET 15 TE-6"WCC-MD-206

TE-6"WCC-MD-206 <1½"CeGL>

No.2 DECANTER SHEET 15 TE-4"WCC-MD-104

TE-4"WCC-MD-104 <1½"CeGL>

No. 1 DECANTER SHEET 15 TE-4"WCC-MD-208

TE-4"WCC-MD-208 <1½"CeGL>

No.3 DECANTER SHEET 15 TE-6"WCC-MD-207 <1½"CeGL>

No.2 DECANTER SHEET 15 TE-4"WCC-MD-103 <1½"CeGL>

No. 1 DECANTER SHEET 15 TE-4"WCC-MD-209 <1½"CeGL>

ANTI-FREEZE FILL

BA795 -1"

BA795-1"

SG

10' SEAL

B-6"V-VE-100

BA795-1"

ANTI-FREEZE FILL

BA795 -1"

BA795-1"

SG

10' SEAL

B-6"V-VE-101

BA795-1"

PL546-2"

BU589-6"

CH270-2"

TE-3"WWL-EPD-200

PROCESS COLLECTION TANK SHEET 26

TE-6"-WCC-MD-108

EQUALIZATION HEADER SHEET 17

TP 117

CONESTOGA-ROVERS & ASSOCIATES

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
LEACHATE STORAGE 1 & 2

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-16	

01069-00(000)EF-NF016 MAY 07/2002

PLANT ID.	HP-11 (1)	HP-12 (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	LEACHATE STORAGE TANK No. 3	LEACHATE STORAGE TANK No. 4																					
DESCRIPTION: MATERIAL	VE LINED CS	VE LINED CS																					
SIZE	30' DIA. x 26' H	30' DIA. x 26' H																					
CAPACITY	127,000 GAL.	127,000 GAL.																					
TEMP/PRESS	–	–																					
HP/V/RPM	–	–																					
WEIGHT	46,425 LBS.	46,425 LBS.																					
MANUFACTURE	BROWN BOILER	BROWN BOILER																					
MODEL	–	–																					
VENDOR	–	–																					

B-4"V-EPD-236

B-4"V-EPD-236 VENT SHEET 18

B-4"V-EPD-222

SEQ A,B,C,D,J,K
LAHH 811
UC 1
I:000/15

LAHH
LAH
LAL
LALL
LBQ
LR
SEQ A,B,C,D,J,K
LI 810
UC 1
I:30/5
N130:9

LIT 810

PSV 510

LSHH 811

B-6"DP-EPD-200

L-2" M-4" J-30" F-8" N E C-6"

6"X4"

TISH 609

B-4"DP-EPD-201

SG 918

10' SEAL

BA714-1" ANTI-FREEZE FILL

BA714-1"

TT 610

TW 610

<2" CeGL>TE

K

A-16"

H-60"

1

B-6"

J-30"

D-16"

G

PLS60-4"

PLS61-6"

UY 910

AS

S

UV 910

ZSHL 910

0:013/0

SEQ E

UC 1

YIC 910

DP/CL

I:002/0

I:002/1

FC D1816-2"

PAN

B-4"DP-EPD-202

TE-6"WWL-EPD-259 <1½"CeGL>

BU589-6"

EQUILIZATION SHEET 16

TE-6"WCC-MD-108

B-4"DP-EPD-207

DIKE

B-4"V-EPD-221

SEQ A,B,C,D,J,K
LAHH 821
UC 1
I:000/16

LAHH
LAH
LAL
LALL
LBQ
LR
SEQ A,B,C,D,J,K
LI 820
UC 1
I:30/6
N130:10

LIT 820

PSV 520

LSHH 821

B-6"DP-EPD-203

L-2" M-4" J-30" F-8" N E C-6"

6"X4"

TISH 619

B-4"DP-EPD-204

SG 926

10' SEAL

BA714-1" ANTI-FREEZE FILL

BA714-1"

TT 620

TW 620

<2" CeGL>TE

K

A-16"

H 60"

2

B-6"

J 30"

D-16"

G

PLS60-4"

PLS61-6"

UY 920

AS

S

UV 920

ZSHL 920

0:013/2

SEQ E

UC 1

YIC 920

DP/CL

I:002/10

I:002/11

FC D1816-2"

PAN

B-4"DP-EPD-205

TE-6"WWL-EPD-258 <1½"CeGL>

BU589-6"

TE-6"WWL-EPD-257 <1½"CeGL>

EQUALIZATION HEADER

EQUALIZATION SHEET 18

DRAIN SHEET 18

B-4"DP-EPD-207

CONESTOGA-ROVERS & ASSOCIATES

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

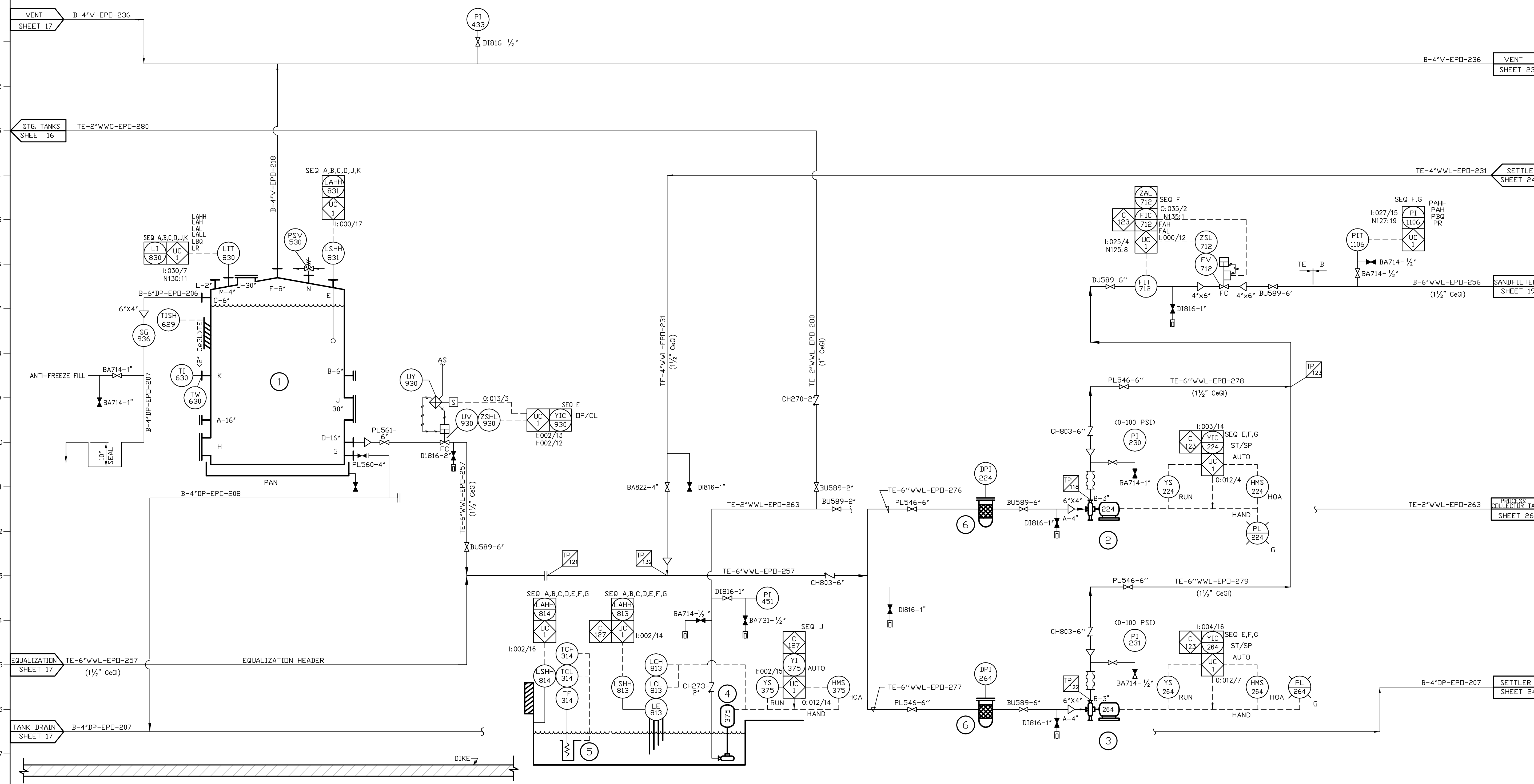
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
LEACHATE STORAGE No. 3 & 4

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-17	

01069-00(000)EF-NF017 MAY 07/2002

PLANT ID.		HP-13 (1)	P-224 (2)	P-264 (3)	P-375 (4)	– (5)	– (6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME		LEACHATE STORAGE TANK No. 5	LEACHATE FEED PUMP No. 1	LEACHATE FEED PUMP No. 2	STORAGE DIKE SUMP PUMP	IMMERSION SUMP HEATER	LEACHATE FEED PUMP STRAINERS No. 1 & 2																	
DESCRIPTION	MATERIAL	VE LINED CS	CD4M	CD4M	DI	–	CS/SS																	
	SIZE	30' DIA. x 24' H	3x4-8G	3x4-8G	1 1/2x3-6(4 1/4)	–	6" 150# FLG.																	
	CAPACITY	127,000 USG	550GPM @ 170'TDH	550GPM @ 170'TDH	75 GPM @ 80'	–	–																	
	TEMP/PRESS	–	–	–	–	–	–																	
	HP/V/RPM	–	50/460/3600	50/460/3600	1/460/1750	4kV/480V	–																	
	WEIGHT	46,425 LBS.	–	–	–	–	–																	
	MANUFACTURE	BROWN BOILER	GOULD	GOULD	GOULD	CHROMALOX	HAYWARD																	
	MODEL	–	3196MTX	3196MTX	3171 ST	–	MODEL 72																	
	VENDOR	–	–	–	–	–	–																	



VENT
SHEET 17
B-4"V-EPD-236
PI 433
DI816-½"
VENT
SHEET 23
STG. TANKS
SHEET 16
TE-2"WWC-EPD-280
B-4"V-EPD-218
TE-4"WWL-EPD-231
SETTLER
SHEET 24
SEQ A,B,C,D,J,K
LAHH 831
UC 1
I:000/17
LSHH 831
PSV 530
LI 830
UC 1
LIT 830
I:030/7
N130:11
B-6"DP-EPD-206
SG 936
TISH 629
TI 630
TW 630
ANTI-FREEZE FILL
BA714-1"
B-4"DP-EPD-207
10" SEAL
PAN
B-4"DP-EPD-208
UY 930
AS
O:013/3
SEQ E
UC 1
YIC 930
DP/CL
UV 930
ZSHL 930
I:002/13
I:002/12
PL561-6"
PL560-4"
DI816-2"
FC
TE-6"WWL-EPD-257
(1½" CeGl)
BU589-6"
TE-4"WWL-EPD-231 (1½" CeGl)
TE-2"WWL-EPD-280 (1" CeGl)
CH270-2"
BU589-2"
BA822-4"
DI816-1"
TE-2"WWL-EPD-263
TP 121
TP 132
TE-6"WWL-EPD-257
CH803-6"
DI816-1"
PI 451
BA714-½"
BA731-½"
SEQ J
C 127
YI 375
UC 1
AUTO
YS 375
HMS 375
HOA
RUN
HAND
O:012/14
I:002/15
CH273-2"
SEQ A,B,C,D,E,F,G
LAHH 814
LAHH 813
C 127
I:002/14
I:002/16
TCH 314
TCL 314
TE 314
LSHH 814
LSHH 813
LCH 813
LCL 813
LE 813
EQUALIZATION
SHEET 17
TE-6"WWL-EPD-257
(1½" CeGl)
EQUALIZATION HEADER
TANK DRAIN
SHEET 17
B-4"DP-EPD-207
DIKE
ZAL 712
SEQ F
C 123
FIC 712
O:035/2
N135:1
FAH
FAL
I:000/12
I:025/4
N125:8
ZSL 712
FV 712
FIT 712
BU589-6"
DI816-1"
4"x6"
4"x6"
BU589-6'
TE B
PIT 1106
I:027/15
N127:19
PI 1106
SEQ F,G
PAHH
PAH
PBQ
PR
BA714-½"
B-6"WWL-EPD-256
(1½" CeGl)
SANDFILTERS
SHEET 19
TP 123
PL546-6"
TE-6"WWL-EPD-278
(1½" CeGl)
CH803-6"
(0-100 PSI)
PI 230
C 123
YIC 224
I:003/14
SEQ E,F,G
ST/SP
AUTO
O:012/4
TP 118
YS 224
HMS 224
HOA
HAND
PL 224
DPI 224
TE-6"WWL-EPD-276
PL546-6"
BU589-6"
6"X4"
B-3"
A-4"
DI816-1"
TE-2"WWL-EPD-263
PROCESS COLLECTOR TANK
SHEET 26
DI816-1"
PL546-6"
TE-6"WWL-EPD-279
(1½" CeGl)
PI 231
C 123
YIC 264
I:004/16
O:012/7
TP 122
YS 264
HMS 264
PL 264
DPI 264
TE-6"WWL-EPD-277
B-4"DP-EPD-207
SETTLER
SHEET 24

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

OXY

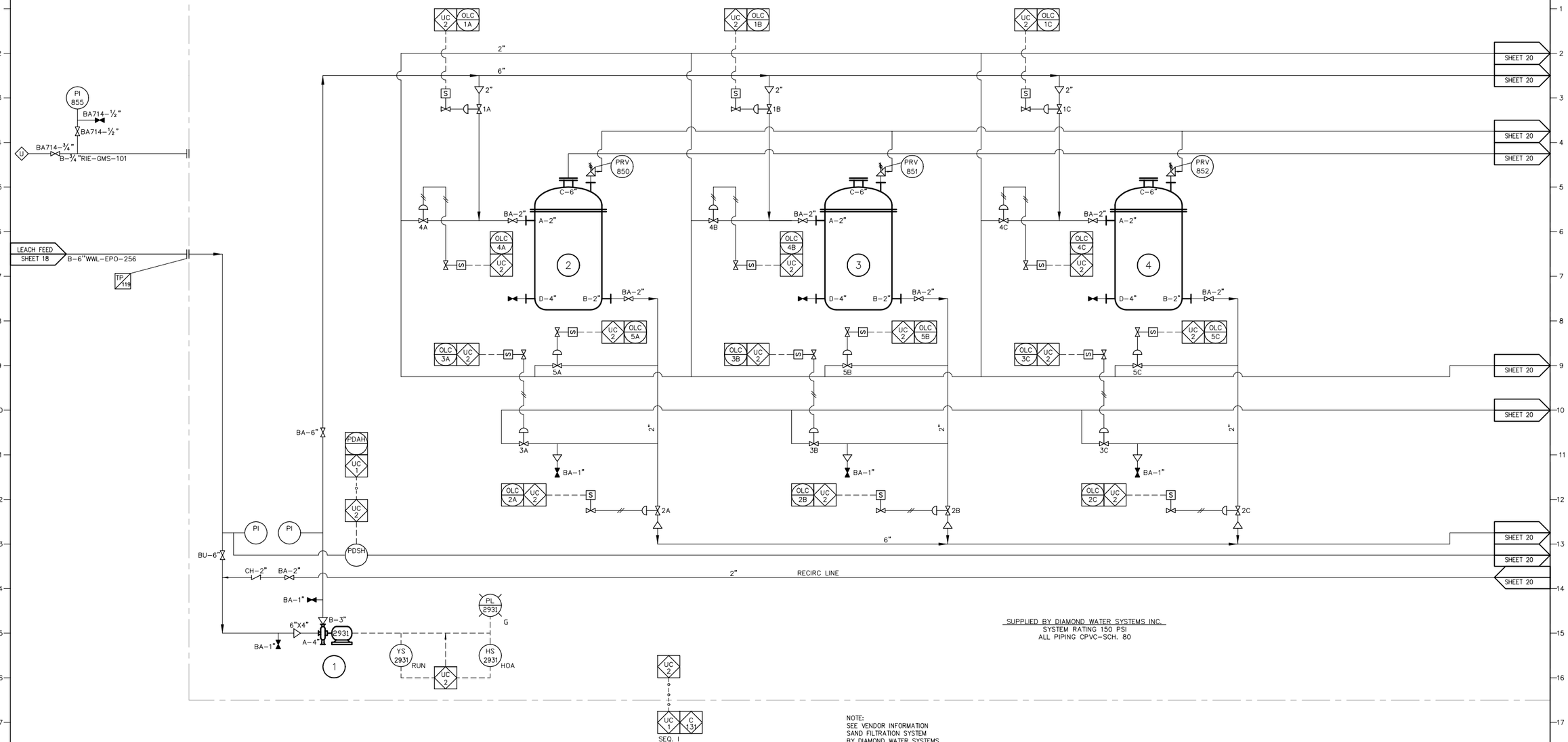
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
LEACHATE STORAGE & STORAGE DIKE SUMP

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER A-01069-00-18	REV
DATE	CHK'D	PROJ. NO. 01069-00		

01069-00(000)EF-NF018 MAY 07/2002

PLANT ID.	P-293R-1 (1)	HP-49 (2)	HP-50 (3)	HP-51 (4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	DIAMOND FILTER PUMP	SAND FILTER BED "A"	SAND FILTER BED "B"	SAND FILTER BED "C"																			
DESCRIPTION: MATERIAL	316 SS	–	–	–																			
SIZE	4x3x5F	30" DIA. x 58" H	30" DIA. x 58" H	30" DIA. x 58" H																			
CAPACITY	–	–	–	–																			
TEMP/PRESS	–	150 PSI	150 PSI	150 PSI																			
HP/V/RPM	10HP	–	–	–																			
WEIGHT	–	–	–	–																			
MANUFACTURE	INGERSOLL-DRESSER	DIAMOND	DIAMOND	DIAMOND																			
MODEL	D824	VSA-630-5.0-ASME	VSA-630-5.0-ASME	VSA-630-5.0-ASME																			
VENDOR	–	–	–	–																			



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

OXY

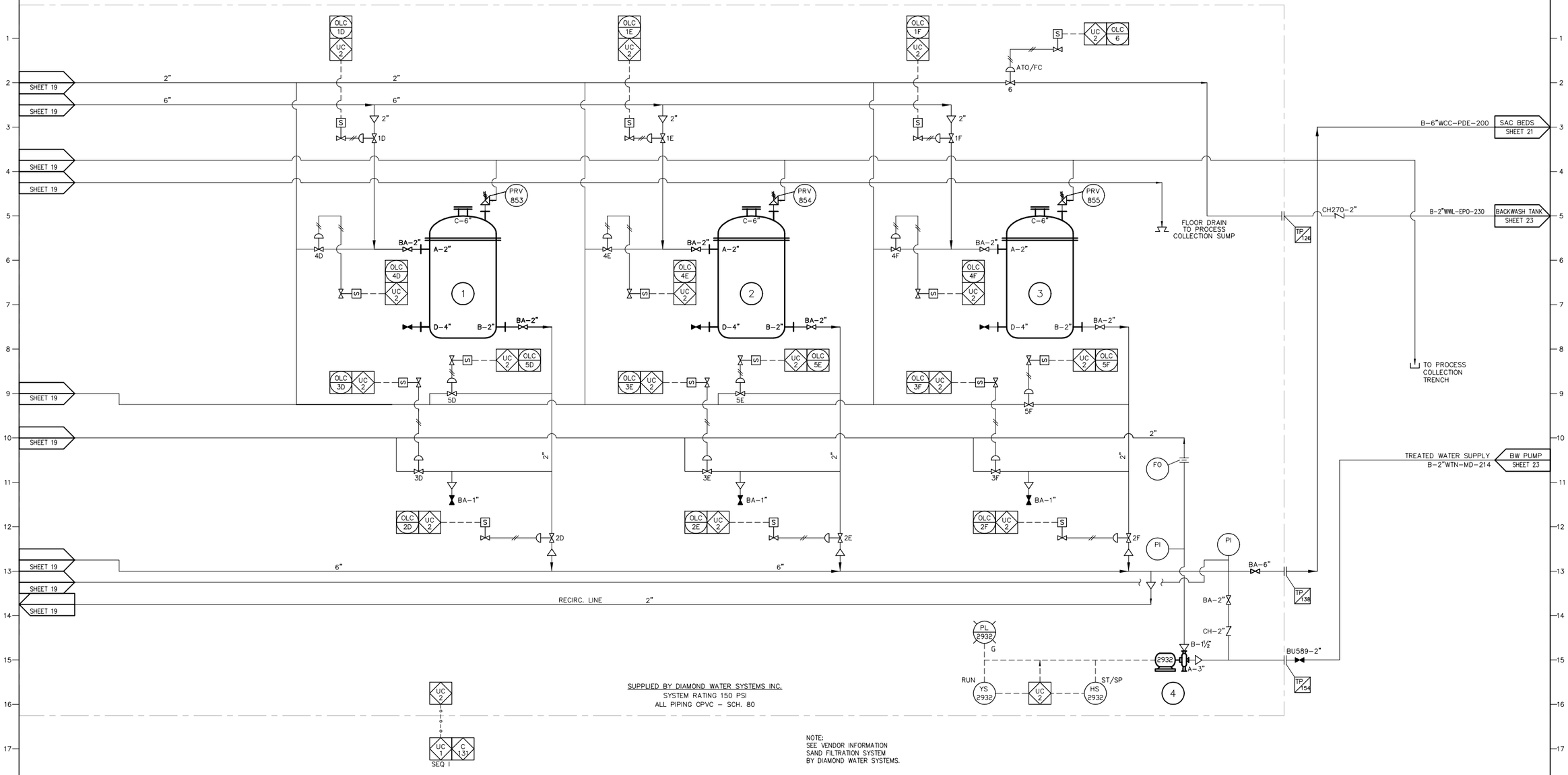
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
SAND FILTERS 1, 2 & 3

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-19	

01069-00(000)EF-NF019 MAY 07/2002

PLANT ID.	HP-52 (1)	HP-53 (2)	HP-54 (3)	P-293R-2 (4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	SAND FILTER BED "D"	SAND FILTER BED "E"	SAND FILTER BED "F"	DIAMOND BACKWASH PUMP																			
DESCRIPTION: MATERIAL	–	–	–	316 SS																			
SIZE	30" DIA. x 58" H	30" DIA. x 58" H	30" DIA. x 58" H	3x1.5x6F																			
CAPACITY	–	–	–	–																			
TEMP/PRESS	150 PSI	150 PSI	150 PSI	–																			
HP/V/RPM	–	–	–	3HP																			
WEIGHT	–	–	–	–																			
MANUFACTURE	DIAMOND	DIAMOND	DIAMOND	INGERSOLL-DRESSER																			
MODEL	VSA-630-5.0-ASME	VSA-630-5.0-ASME	VSA-630-5.0-ASME	D824																			
VENDOR	–	–	–	–																			



SUPPLIED BY DIAMOND WATER SYSTEMS INC.
SYSTEM RATING 150 PSI
ALL PIPING CPVC – SCH. 80

NOTE:
SEE VENDOR INFORMATION
SAND FILTRATION SYSTEM
BY DIAMOND WATER SYSTEMS.

CONESTOGA-ROVERS & ASSOCIATES

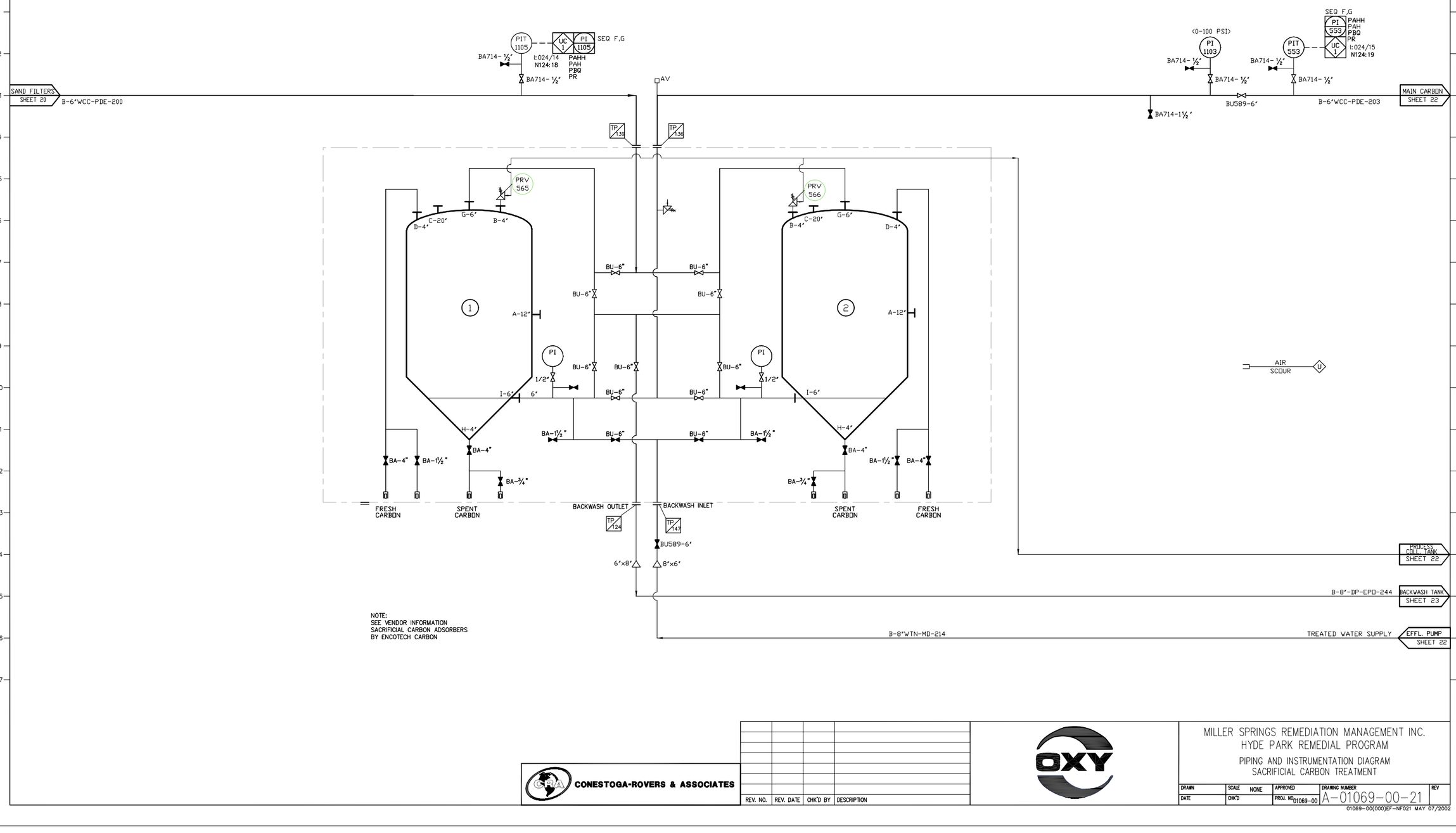
REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION
2	3/02		REMOVED SLUDGE FILTER
1	3/02		REVISED TAG SHEET NUMBER

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM
PIPING AND INSTRUMENTATION DIAGRAM
SAND FILTERS 4, 5 & 6

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-20	2

01069-00(000)EF-NF020 JUL 26/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		HP-26	HP-27																					
NAME		SACRIFICIAL CARBON BED "A"	SACRIFICIAL CARBON BED "B"																					
DESCRIPTION	MATERIAL	PLASITELINED CS	PLASITELINED CS																					
	SIZE	10' DIA. x 9" SS	10' DIA. x 9" SS																					
	CAPACITY	–	–																					
	TEMP/PRESS	150 PSI @ 150°F	150 PSI @ 150°F																					
	HP/V/RPM	–	–																					
	WEIGHT	20,000 LBS.	20,000 LBS.																					
	MANUFACTURE	ENCOTECH	ENCOTECH																					
	MODEL	–	–																					
	VENDOR	–	–																					



NOTE:
SEE VENDOR INFORMATION
SACRIFICIAL CARBON ADSORBERS
BY ENCOTECH CARBON

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
SACRIFICIAL CARBON TREATMENT

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-21	

01069-00(000)EF-NF021 MAY 07/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		HP-31	HP-32	HP-33	HP-34																			
NAME		CARBON BED "A"	CARBON BED "B"	CARBON BED "C"	CARBON BED "D"																			
DESCRIPTION	MATERIAL	EPOXY LINED CS	EPOXY LINED CS	EPOXY LINED CS	EPOXY LINED CS																			
	SIZE	10'DIA. x 11'-6"H	10'DIA. x 11'-6"H	10'DIA. x 11'-6"H	10'DIA. x 11'-6"H																			
	CAPACITY	–	–	–	–																			
	TEMP/PRESS	–	–	–	–																			
	HP/V/RPM	–	–	–	–																			
	WEIGHT	20,000	20,000	20,000	20,000																			
	MANUFACTURE	ASI	ASI	ASI	ASI																			
	MODEL	–	–	–	–																			
	VENDOR	–	–	–	–																			

B-6"WCC-EPD-282
6"x8"
BU730-6"
BA714-2"
PRV 561
B-6"WCC-EPD-283
6"x8"
BU730-6"
PRV 562
BA714-2"
B-6"WCC-EPD-284
6"x8"
BU730-6"
BA714-2"
PRV 563
B-6"WCC-EPD-285
6"x8"
BU730-6"
PRV 564
BA714-2"
2"
1
2
3
4
3"UNDER DRAIN
4"
SG 970
SG 971
SG 972
SG 973
B-4"WCC-PDE-212
B-4"WCC-PDE-218
B-4"WCC-PDE-224
B-4"WCC-PDE-230
B-4"WCC-PDE-232
B-4"WCC-PDE-233
TRUCK CONNECTIONS
3"
CH71-2"
SACRIFICIAL CARBON BEDS SHEET 21
B-6"WCC-PDE-203
TP 137
BU730-6"
B-2"WCC-PDE-208
B-6"WCC-PDE-209
B-6"WCC-PDE-210
B-3"WCC-PDE-211
B-4"WCC-PDE-213
B-2"WCC-PDE-214
B-6"WCC-PDE-215
B-6"WCC-PDE-216
B-3"WCC-PDE-217
B-4"WCC-PDE-219
B-2"WCC-PDE-220
B-6"WCC-PDE-221
B-6"WCC-PDE-222
B-3"WCC-PDE-223
B-4"WCC-PDE-225
B-2"WCC-PDE-226
B-6"WCC-PDE-227
B-6"WCC-PDE-228
B-3"WCC-PDE-229
B-4"WCC-PDE-231
BU730-3"
BA714-2"
BU730-6"
4"x6"
1AI 1AD
1BI 1BD
1CI 1CD
1DI 1DD
1AF 1AD 1BF 1BD 1CF 1CD 1DF 1DD
B-6"WCC-PDE-204
B-6"WCC-PDE-205
B-6"WCC-PDE-234
B-6"WCC-PDE-235
B-6"WCC-PDE-206
B-6"WCC-PDE-236
B-6"WCC-PDE-207
B-6"WCC-PDE-237
TP 129
TP 128
B-8"WTN-MD-270
BU589-8"
SACRIFICIAL CARBON BEDS SHEET 21
B-8"WTN-MD-214
4"x8"
B-4"WTN-MD-272
AIR
BA714-1½"
1½"x2"
B-1½"RIEGMD-207
TP 130
BU589-8"
B-8"WWL-EPD-272
BACKWASH TANK SHEET 23
TRUCK CONNECTION
BU589-4"
B-4"DP-EPD-249
PROCESS COLLECTION TANK SHEET 26
BU730-4"
FQI 1107
TP 155
B-6"WTN-MD-204
EFFLUENT TANK SHEET 23
TREATED WATER SUPPLY
B-8"WTN-MD-214
2"x4"
PL546-4"

CONESTOGA-ROVERS & ASSOCIATES

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM
PIPING AND INSTRUMENTATION DIAGRAM
CARBON TREATMENT

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ NO. 01069-00	A-01069-00-22	

01069-00(000)EF-NF022 MAY 07/2002

PLANT ID.	P-291-1 (1)	P-222 (2)	HP-07 (3)	P-223 (4)	– (5)	HP-08 (6)	P-215 (7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	PEROXIDE ADDITION PUMP	BACKWASH PUMP	EFFLUENT TANK	EFFLUENT PUMP	PROPORTIONAL SAMPLER	BACKWASH TANK	BACKWASH TRANSFER PUMP																
DESCRIPTION: MATERIAL	PVC	DI	CS	CD4M	–	VE LINED CS	CD4M																
DESCRIPTION: SIZE	–	2x3-10(8 1/2)	18' x 22'	4x6-10H(10)	46x24x25	18' DIA. x 22' H	1 1/2x3-13(11 1/2)																
DESCRIPTION: CAPACITY	2.9 GPH/145 PSI	170 GPM @ 70'	40,000 USG	550 GPM @ 70'	–	40,000 USG	150 GPM @ 115'																
DESCRIPTION: TEMP/PRESS	–	–	–	–	–	–	–																
DESCRIPTION: HP/V/RPM	120V	7.5/460/1750	–	10/460/1200	2A/115V	–	10/460/1750																
DESCRIPTION: WEIGHT	–	–	–	–	–	22,208	–																
DESCRIPTION: MANUFACTURE	ALLDOS	GOULD	BROWN BOILER	GOULD	ISCO	BROWN BOILER	GOULD																
DESCRIPTION: MODEL	205	3196 MT	–	3196 MTX	2910R	–	3196 MT																
DESCRIPTION: VENDOR	–	–	–	–	–	–	–																

B-4"V-EPO-236
B-4"V-EPO-200
VENT SHEET 28
VENT SHEET 18
B-4"V-EPO-236
B-8"DP-EPO-244
BUILDING WALL
B TE
B-4"V-EPO-203
TE B
B-4"V-EPO-204
VENT SHEET 26
TP 135
SETTLER SHEET 24
SEQ. F,G
LAHH 808
UC 1
LSHH 808
I:000/6
E
H 3"
TP 156
TE-6"WTN-MD-204 (1½" CeGl)
B-6"
C
SEQ F,G,H,I
LIC 807
LAHH LAH LAL LALL LBQ LR
C 126
UC 1
½" CeGl>TE
I:024/8 N124:12
LIT 807
PL546-3"
BA714-½"
F
3
G
B-6"DP-MD-201
B-1 1/2 "WTN-MD-207
PL546-4"
A
PL546-6"
J-6"
D
PL546-3"
TP 158
B-3"DP-MD-202
SEQ H
I:024/6 N124:10
UC 1
AI 906
AAHH AAH AAL AALL ABQ AR
AIT 906
AE 906
BA714-1½"
6"x1½"
SEQ H
FQI 715
FI 715
UC 1
FQAHH FQAH FBQ FR
I:025/11
N125:15
FIT 715
LV 807
FC
0:033/2 N133:1
4"x6"
4"x6"
BU589-6"
TW 615
TT 615
PL546-2"
FY 715
CONTINUOUS PROPORTIONING SAMPLER
5
½"TUBING
10" SEAL
B-4"DP-EPO-210
GL130-¼"
6"SEAL
6"MD-202
TP 143
TANK DRAIN HEADER (OUTSIDE)
4"UWW-PDG
CITY SANITARY SEWER
SEQ I
LAHH 805
UC 1
I:000/7
4"X2"
B-2"V-EPO-203
TE-8"DP-EPO-244 (2" CeGl)
B-2"WWL-EPO-273
PSV 518
LSHH 805
PL560-2"
TP 125
J
B
PL560-3"
B-6"DP-EPO-209
D
4"x6"
SG 955
ANTI-FREEZE FILL
BA714-1"
1 1/2 "CeGl>TE
6
H
G
PAN
F
E
L-8"
TS 808
SEQ I
C 124
LIC 806
UC 1
LAHH LAH LCH LCL LAL LALL LBQ LR
I:030/4 N130:8
K
PL560-3"
BA734-1"
LT 806
A
PL560-3"
PL560-2"
B-2"DP-EPO-236
BU589-2"
BU589-2"
CH273-2"
PI 435
BA714-½"
1½"X2"
215
BU589-3"
BA731-½"
7
TE-3"WWL-EPO-254
SEQ C,E,G
C 124
YIC 215
UC 1
HS 215
AUTO HOA
I:003/13
0:012/3
YS 215
RUN
HAND
PL 215
G
SEQ. H
LAHH 392
UC 1
LSHH 392
I:001/1
B TE
BUILDING WALL
TE-6"WTN-MD-204 (1½" CeGl)
TP 127
SAND FILTERS SHEET 20
B-2"WWL-EPO-230
CH754-2"
TP 131
MAIN CARBON SHEET 22
B-8"WWL-EPO-272
B-6"WTN-MD-204
SEQ E,G,I
C 131
YIC 222
UC 1
ST/SP
AUTO
I:003/12
YS 222
HMS 222
RUN
0:012/11
HOA
HAND
PL 222
G
PI 441
PL546-3"
BA714-½"
CH270-3"
BA714-½"
222
PL546-4"
BA714-½"
PL546-2"
2
TE-4"WTN-MD-272
TE-6"WTN-MD-203
B TE
TE-2"WTN-MD-201
PL546-2"
SAND FILTERS SHEET 20
B-2"WTN-MD-214
SAC BEDS SHEET 21
B-8"DP-EPO-244
MAIN CARBON SHEET 22
B-6"WTN-MD-204
MAIN CARBON SHEET 22
B-8"WTN-MD-214
TP 149
TP 148
B-1/2"POX-SSC-300
SEQ. E,F,G
UC 1
C 130
1
PEROXIDE DRUM
8"X6"
PL546-6"
PL546-6"
TE-6"WTN-MD-271 (1½" CeGl)
TP 146
8" (2" CeGl) TE
TE-8"WTN-MD-214
(0-60 PSI)
PI 442
CH270-6"
BA714-½"
BA714-½"
TP 145
B-4"
TP 142
6"X4"
PL546-6"
A-6"
223
PL546-2"
4
SEQ I
YIC 223
ST/SP
AUTO
UC 1
HMS 223
HOA
0:012/16
I:004/17
YS 223
RUN
HAND
PL 223
G
TR
I:024/7 N124:11
UC 1
TI 615
PROCESS COLLECTION TANK SHEET 26

CONESTOGA-ROVERS & ASSOCIATES

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

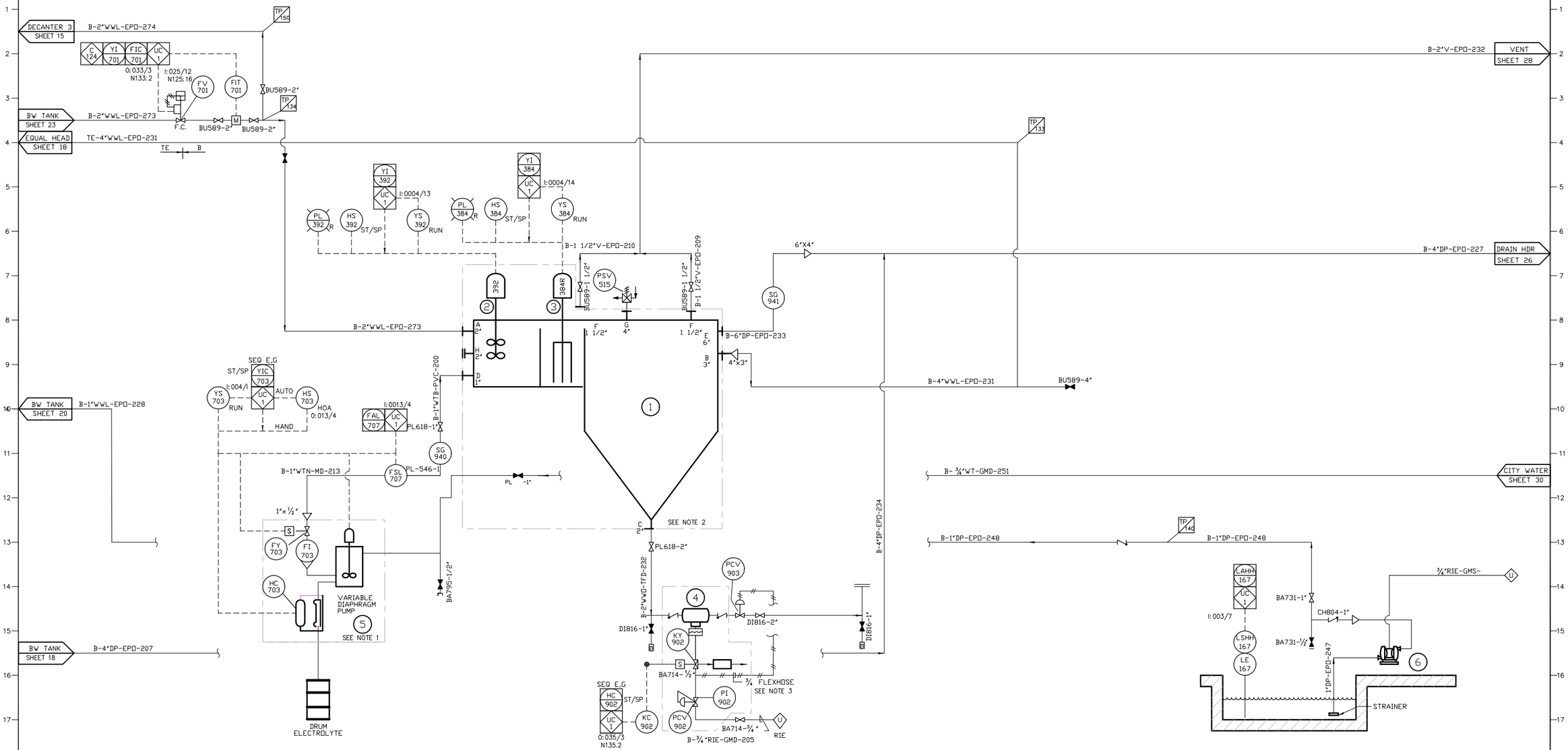
OXY

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM
PIPING AND INSTRUMENTATION DIAGRAM
EFFLUENT & BACKWASH TANKS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-23	

01069-00(000)EF-NF023 MAY 07/2002

PLANT ID.		HP-20 (1)	– (2)	– (3)	P-902 (4)	P-703 (5)	P-903 (6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME		SETTLER FLOCCULATOR	SETTLER FLASH MIX AGITATOR	SETTLER FLOCCULATION AGITATOR	SETTLER SLUDGE PUMP	SETTLER ELECTROLYTE FEEDER	SLUDGE FILTER AREA SUMP PUMP																	
DESCRIPTION	MATERIAL	EPOXY LINED CS	–	–	–	–	–																	
	SIZE	6'-3" DIA.x12'-9"	–	–	1 1/2"x1 1/2"	23"x10"x16"	–																	
	CAPACITY	80 GPM	–	–	5 GPM @ 190'	0.02 – 1.0 GPH	–																	
	TEMP/PRESS	–	–	–	5SCFM @ 90PSIG	–	–																	
	HP/V/RPM	–	0.33/460/1750	0.25/460/1750	–	6A/115V	–																	
	WEIGHT	–	–	–	–	–	–																	
	MANUFACTURE	EMICO	LIGHTNING	LIGHTNING	–	STRANCO	–																	
	MODEL	100R/2	–	–	–	PB40-1	–																	
	VENDOR	–	–	–	–	–	–																	



NOTES:
1. SEE VENDOR INFORMATION; ELECTROLYLE BLENDING UNIT BY STRANCO.
2. SEE VENDOR INFORMATION; CLARIFIER/FLOCCULATOR BY EIMCO
3. SEE VENDOR INFORMATION; SETTLER SLUDGE PUMP BY WARREN RUPP.

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION
1	3/02		ADDED SLUDGE FILTER AREA SUMP PUMP

CONESTOGA-ROVERS & ASSOCIATES

OXY

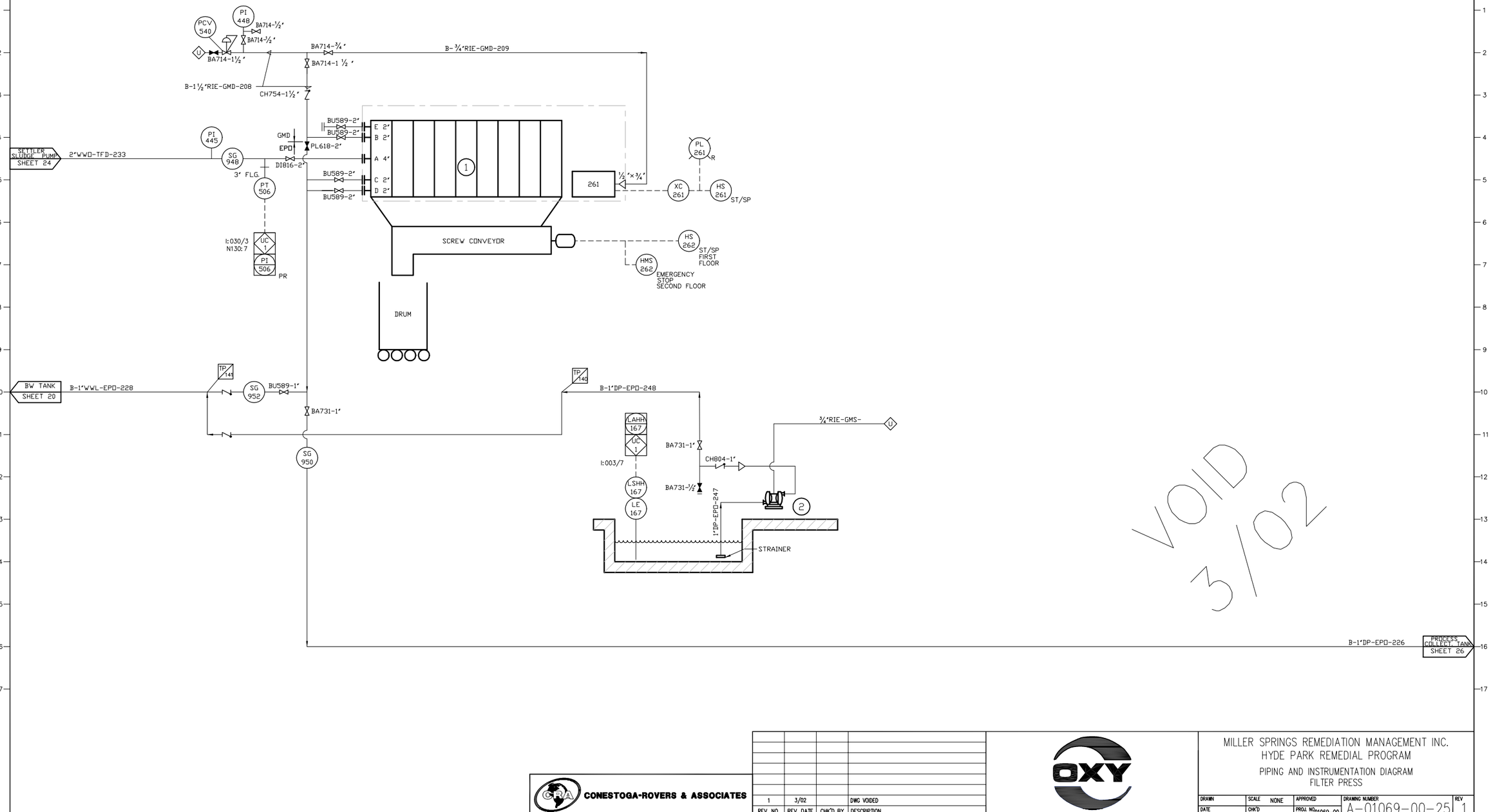
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
SETTLER

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV.
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-24	1

01069-00(000)EF-NF024 MAY 07/2002

PLANT ID.	–	1	P-903	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME	SETTLER SLUDGE FILTER		SLUDGE FILTER AREA SUMP PUMP																						
DESCRIPTION																									
MATERIAL	POLYPROPYLENE		–																						
SIZE	17'1"x4'3"x6'8"		–																						
CAPACITY	37 CF		–																						
TEMP/PRESS	–		–																						
HP/V/RPM	2/460/1750		–																						
WEIGHT	14,000 LBS.		–																						
MANUFACTURE	DURIRON		–																						
MODEL	QPG1000/25-42		–																						
VENDOR	–		–																						



VOID 3/02

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION
1	3/02		DWG VOIDED

CONESTOGA-ROVERS & ASSOCIATES

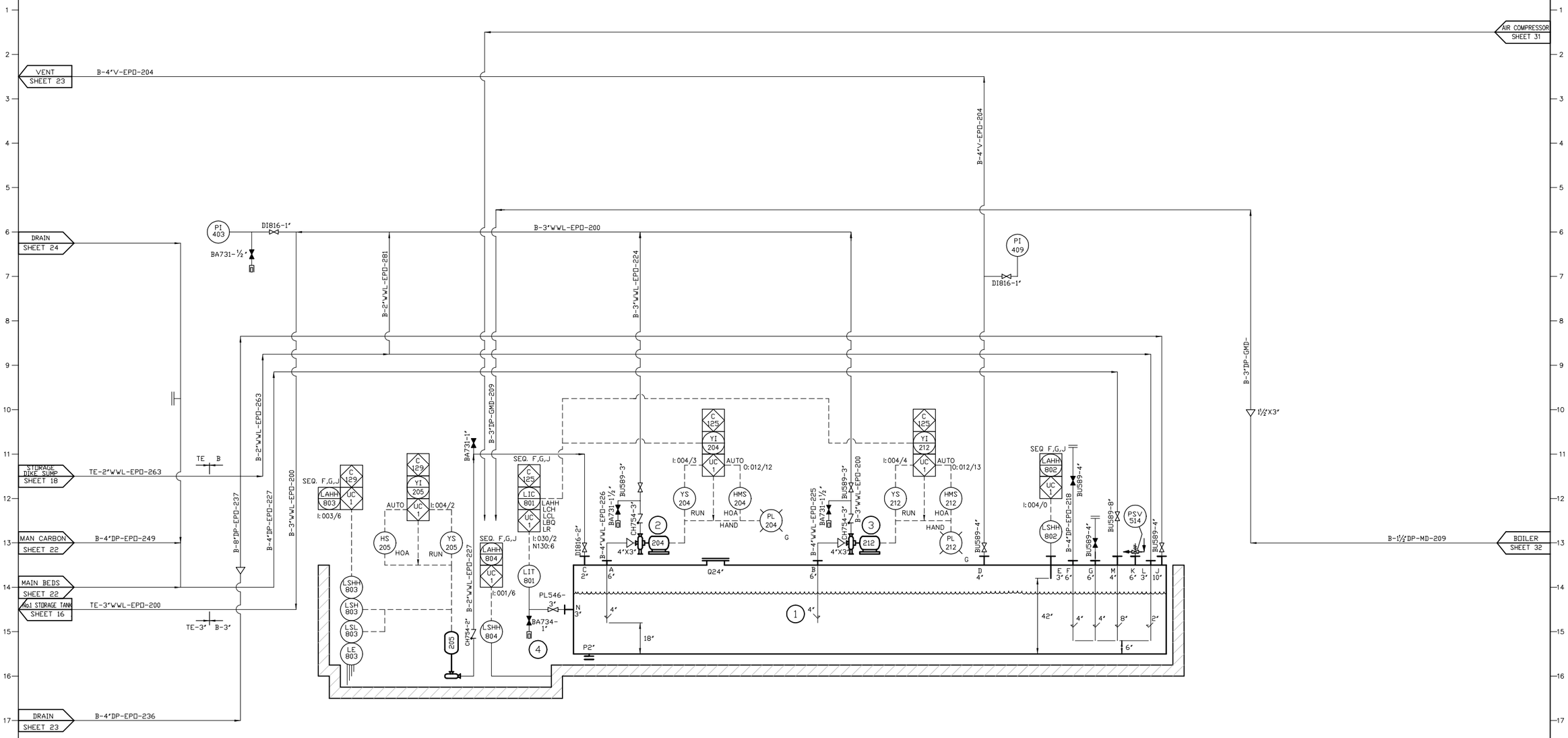
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
FILTER PRESS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-25	1

01069-00(000)EF-NF025 MAY 07/2002

PLANT ID.	HP-17 (1)	P-204 (2)	P-212 (3)	P-205 (4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	PROCESS COLLECTION TANK	PROCESS COLLECTION TANK PUMP No. 1	PROCESS COLLECTION TANK PUMP No. 2	PROCESS COLLECTION SUMP PUMP																			
DESCRIPTION: MATERIAL	FRP-VE	ELEC. NI-DI	ELEC. NI-DI	DI																			
DESCRIPTION: SIZE	5' DIA. x 10' H	3x3-10(9 7/8)	3x3-10(9 7/8)	1x1 1/2x6(4 5/8)																			
DESCRIPTION: CAPACITY	1500 USG	160 GPM @ 75'	160 GPM @ 75'	20 GPM @ 20'																			
DESCRIPTION: TEMP/PRESS	–	–	–	–																			
DESCRIPTION: HP/V/RPM	–	7.5/460/1750	7.5/460/1750	1/460/1750																			
DESCRIPTION: WEIGHT	1,800 LBS.	–	–	–																			
DESCRIPTION: MANUFACTURE	PLAS-TANKS	GOULDS	GOULDS	GOULDS																			
DESCRIPTION: MODEL	–	3796 MT	3796 MT	3171 ST																			
DESCRIPTION: VENDOR	–	–	–	–																			



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION
1	3/02		REVISED DRAIN LINE

CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
PROCESS COLLECTION TANK

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-26	1

01069-00(000)EF-NF026 MAY 07/2002

PLANT ID.	P-134 (1)	– (2)	– (3)	– (4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	DECANTER DIKE SUMP PUMP	IMMERSION SUMP HEATER	WASH BLDG. VENT ARM	WASH BLDG. VENT FILTER																			
DESCRIPTION: MATERIAL	CI	–	CS	CS/CAR. PACK																			
SIZE	2 1/2x3x11(8)	–	–	4 @ 24"x24"x29"																			
CAPACITY	150GPM @ 90'TDH	–	4500 CFM	4500 CFM																			
TEMP/PRESS	–	–	3 1/2" H_2O	0.15" H_2O																			
HP/V/RPM	5/460/1750	6kV/480V	5/460/1750	190# EA.																			
WEIGHT	–	–	312 LBS.	–																			
MANUFACTURE	GOULDS	CHROMALOX	HARTZEL	FARR																			
MODEL	3171	–	54-VA-18-VL3	CF-4A																			
VENDOR	–	–	–	–																			

STG/DECANTER SHEET 16

TE-2"WCC-MD-275

LEACH STORAGE SHEET 16

TE-1 ½" WCC-MD-112

SEQ K
C 128
Y1 134
AUTO
UC 1
I: 000/4
PL 134
G
0: 012/15
HMS 134
HOA
YS 134
RUN

SEQ A,B,C,D,E,F,G
LAHH 111
C 128
UC 1
I: 000/3
LSHH 111
LCH 111
LCL 111
LE 111

134
1
2
PL546-1 ½"
PL546-2
CH270-2"
3"X2"
BA714-1"

SEQ A,B,C,D,E,F,G
LAHH 112
UC 1
I: 000/5
LSHH 112
TCH 115
TCL 115
TE 115

SLOPE
6"UPS-PDG
SLOPE
6"UPS-PDG
6"UPS-PDG

U TE-1"WT-GMD-237 <1'CeGL>

TE-1"WT-GMD-233 <1'CeGL>
TE-1"WT-GMD-234 <1'CeGL>
TE-1"WT-GMD-236 <1'CeGL>
TE-1"WT-GMD-237 <1'CeGL>
BA714-1"
B-10"PC-LS-101
B-10"PC-LS-103
B-18"PC-LS-104
2'-0" SQ. AIR INTAKE TYP. (3) PLACES
BLAST GATE - 10" TYP. (3) PLACES
B-10"PC-LS-100
14"X10"
B-14"PC-LS-102
18"X14"
141
3
4
BA714-1½"
PI 112
DIRT

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

OXY

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
DECANTER DIKE SUMP & WASH BUILDING

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-27	

01069-00(000)EF-NF027 MAY 07/2002

PLANT ID.	–	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME	TANK VENT ADSORBERS 1A–1H																							
DESCRIPTION – MATERIAL	CARBON																							
SIZE	NITOX N–1000																							
CAPACITY	600 CFM @																							
TEMP/PRESS	1" H_2O																							
HP/V/RPM	–																							
WEIGHT	565 LBS./UNIT																							
MANUFACTURE	TIGG CORP.																							
MODEL	–																							
VENDOR	–																							

VENT SHEET 23

VENT SHEET 24

P1 475

DI816-1"

B-4"V-EPD-200

B-4"V-EPD-200

B-3"V-EPD-229

B-2"V-EPD-232

B-4"V-EPD-223

B-3"V-EPD-224

B-3"V-EPD-225

B-3"V-EPD-228

B-3"V-EPD-229

1"W/B.F.

B-3"V-EPD-226

ATMOS. VENT

1"W/B.F.

B-3"V-EPD-227

ATMOS. VENT

CABINET (TYP.)

DRUM (TYP.)

1"W/B.F.

B-3"V-EPD-230

ATMOS. VENT

1"W/B.F.

B-3"V-EPD-231

ATMOS. VENT

TISH 601

TISH 602

TISH 603

TISH 604

TISH 605

TISH 606

TISH 607

TISH 608

1A

1B

1C

1D

2" INSULATION

1E

1F

1G

1H

CONESTOGA-ROVERS & ASSOCIATES

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

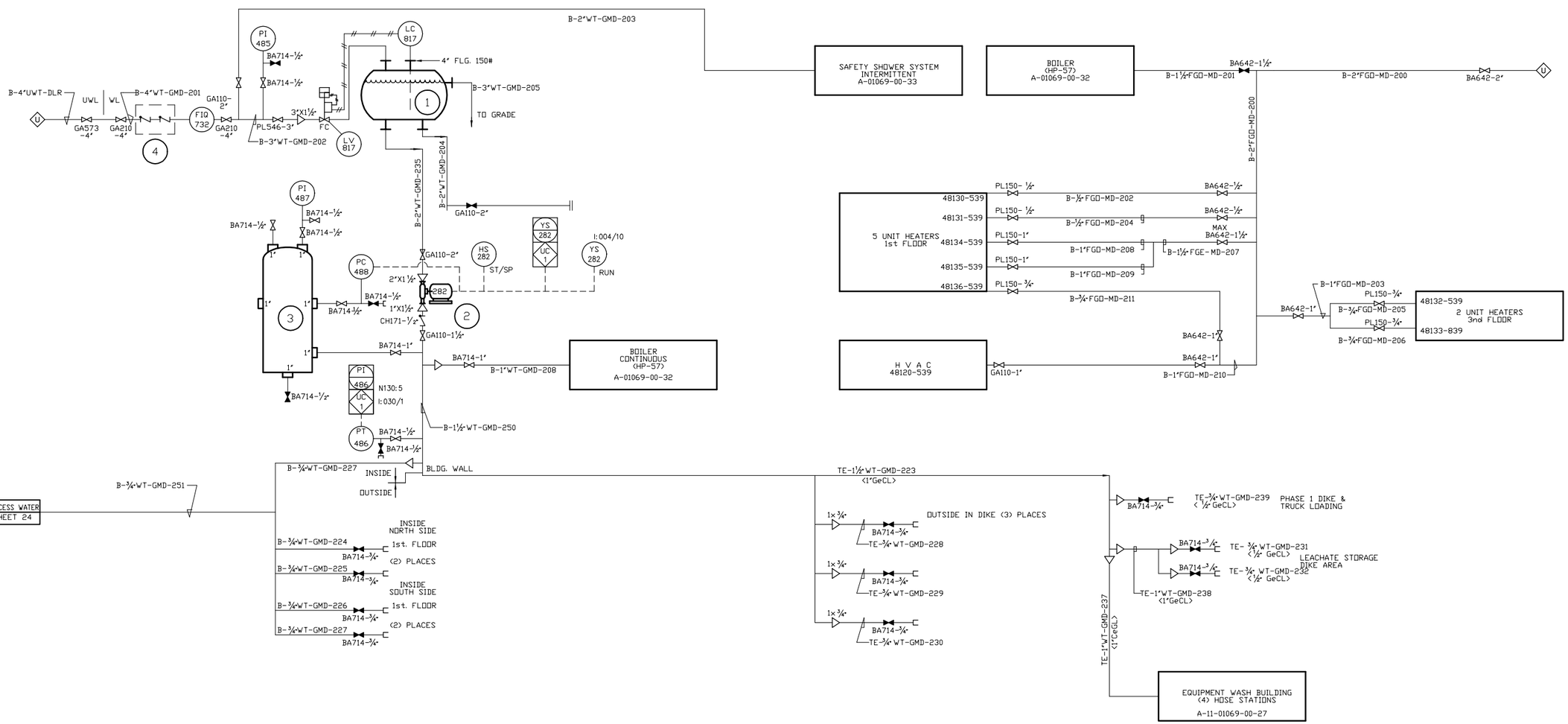
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
TANK VENT CARBON

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO 01069–00	A–01069–00–28	

01069–00(000)EF–NF028 MAY 07/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		HP-39	P-282	HP-40	–																			
NAME		PROCESS WATER BREAK TANK	WATER PUMP	PRESSURE CONTROL TANK	BACKFLOW PREVENTER																			
DESCRIPTION	MATERIAL	CS	DI	GALV/CS	–																			
	SIZE	5' DIA. x 8'	1x1 1/2-6 (5")	12" x 60"	4" FLG.																			
	CAPACITY	1,200 GAL.	50 GPM @ 30'	30 GAL.	–																			
	TEMP/PRESS	–	–	100 PSI	–																			
	HP/V/RPM	–	1/460/1750	–	–																			
	WEIGHT	–	–	65 LBS.	–																			
	MANUFACTURE	–	GOULD	McMASTER-CARR	WATTS																			
	MODEL	–	3196 MT	3669K18	909LF																			
	VENDOR	–	–	–	–																			



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

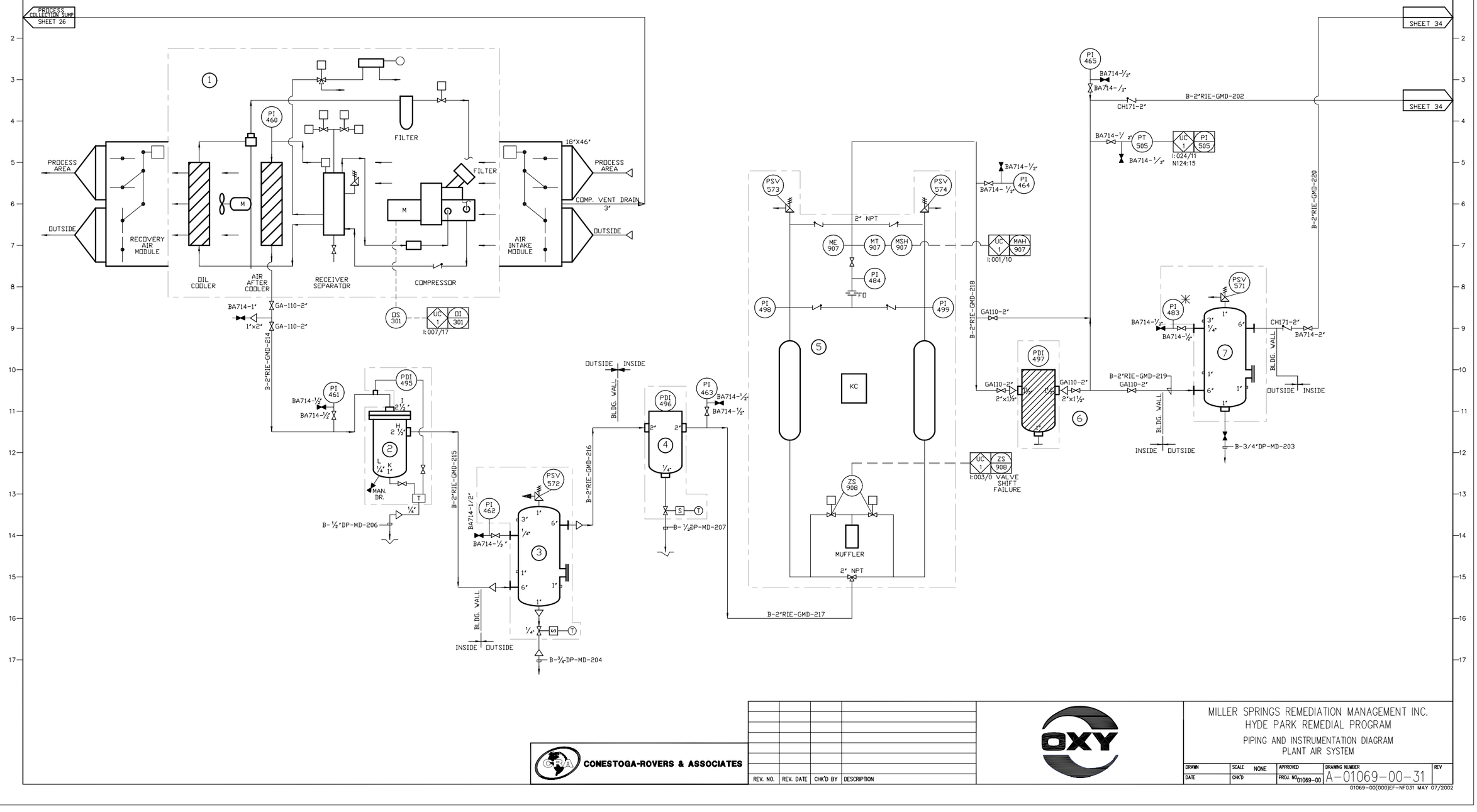
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
CITY WATER & NATURAL GAS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ NO 01069-00	A-01069-00-30	

01069-00(000)EF-NF030 MAY 07/2002

PLANT ID.	–	1	HP-42	2	HP-15	3	HP-43	4	HP-44,45	5	HP-46	6	HP-16	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME	AIR COMPRESSOR		COALESCING FILTER		WET AIR RECEIVER		AIR DRYER PREFILTER		AIR DRYERS		DRYER AFTER FILTER		DRY AIR RECEIVER																	
DESCRIPTION: MATERIAL	–		CS		CS		CS		CS		CS		CS																	
DESCRIPTION: SIZE	–		14" DIA. x 43'-5"		48"x156"		6" DIA. x 55"		4'2"x2'7"x9'6"		6" DIA. x 26.4"		48" DIA. x 156"																	
DESCRIPTION: CAPACITY	375 CFM		500 CFM		1,060 GAL.		–		410 SCFM		420 SCFM		1,060 GAL.																	
DESCRIPTION: TEMP/PRESS	125 PSIG		125 PSIG		–		–		125 PSIG		125 PSIG		–																	
DESCRIPTION: HP/V/RPM	100+3/460/1750		–		–		–		–		–		–																	
DESCRIPTION: WEIGHT	–		190 LBS.		–		30 LBS.		1,100 LBS.		15 LBS.		30 LBS.																	
DESCRIPTION: MANUFACTURE	INGERSOL-RAND		INGERSOL-RAND		INGERSOL-RAND		INGERSOL-RAND		INGERSOL-RAND		INGERSOL-RAND		INGERSOL-RAND																	
DESCRIPTION: MODEL	HP 100		NLM-2		–		FXCD 70G (817G)		KEMP 1070		511 G		–																	
DESCRIPTION: VENDOR	–		–		–		–		–		–		–																	



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

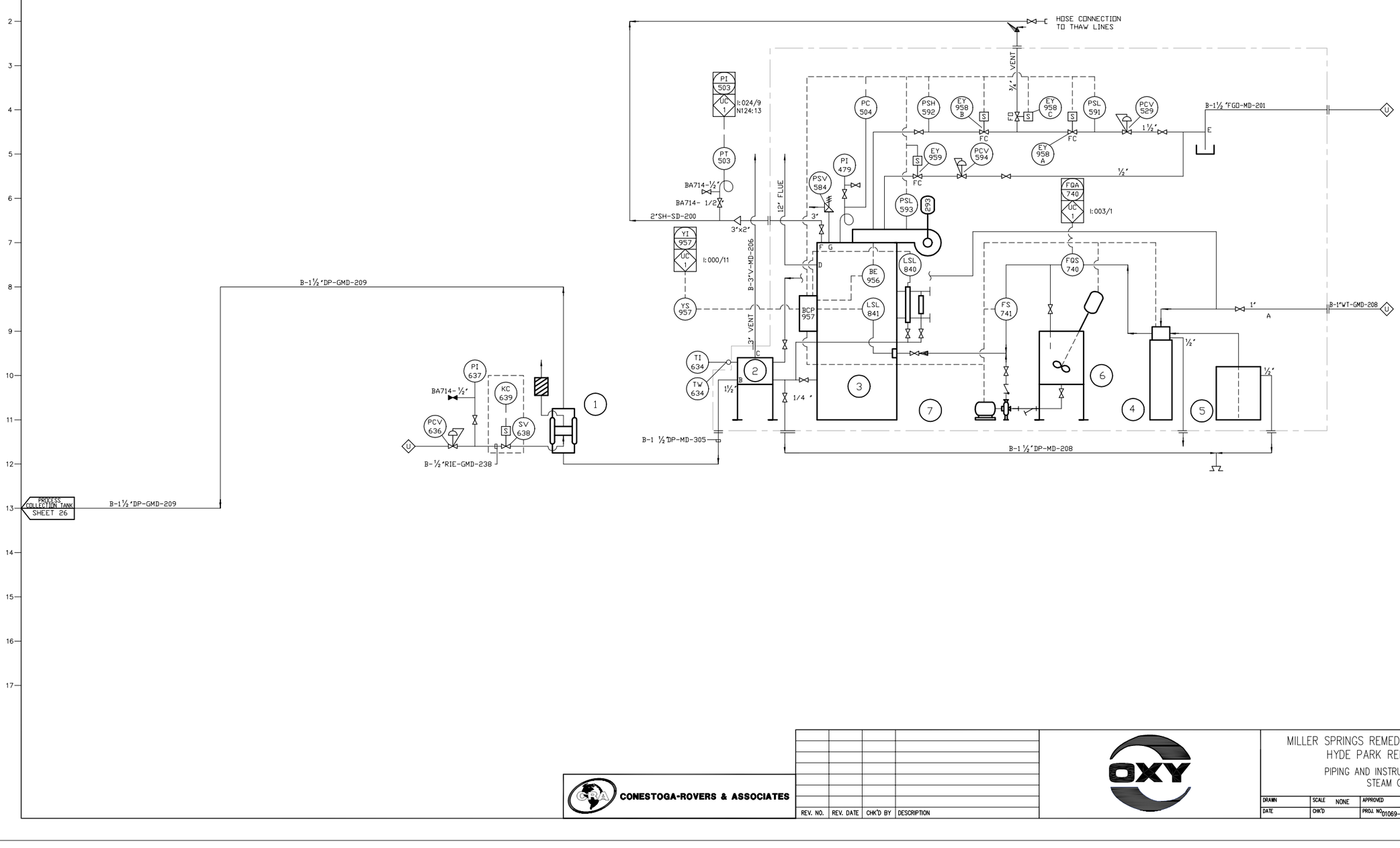
MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
PLANT AIR SYSTEM

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-31	

01069-00(000)EF-NF031 MAY 07/2002

PLANT ID.	HP-55 (1)	HP-56 (2)	HP-57 (3)	HP-59 (4)	HP-60 (5)	HP-58 (6)	P-293L-1 (7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
NAME	BLOW DOWN TANK	BLOW DOWN SEPARATOR	BOILER	WATER SOFTENER	BRINE TANK	CHEMICAL FEED TANK	CHEMICAL FEED PUMP																
DESCRIPTION: MATERIAL	ALUMINUM-VITON	CS	–	FRP	POLYETHYLENE	POLYETHYLENE	–																
SIZE	1"x1"	18" DIA. x 20"	63 x 100	–	–	–	–																
CAPACITY	15 GPM	–	897#/HR	–	–	–	–																
TEMP/PRESS	20 PSIG	–	–	–	–	–	–																
HP/V/RPM	10 PSI AIR 8 SCFM	–	0.75/460/3450	/115V	–	0.25/115V	0.25/115/1750																
WEIGHT	35 LBS.	–	–	–	–	–	–																
MANUFACTURE	ROPER	MUIRHEAD/FULTON	MUIRHEAD/FULTON	MUIRHEAD/KISCO	MUIRHEAD/KISCO	MUIRHEAD/HEWIG	MUIRHEAD/HEWIG																
MODEL	10DB10AAN	F30	FB-030A	KA-1	KA-1	30P-V-1-5	30P-V-1-5																
VENDOR	–	–	–	–	–	–	–																



REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

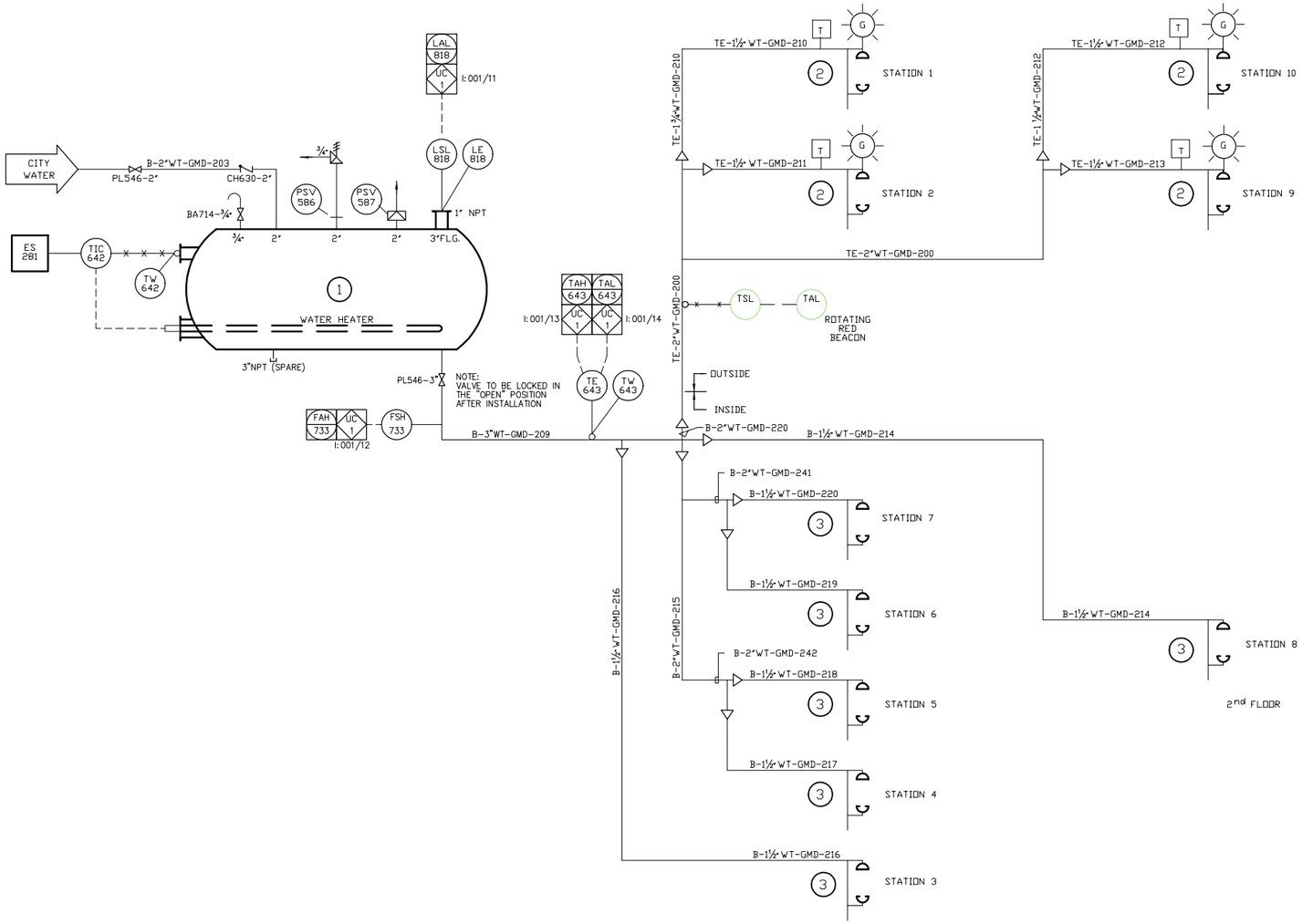
CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM
PIPING AND INSTRUMENTATION DIAGRAM
STEAM GENERATOR

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-32	

01069-00(000)EF-NF032 MAY 07/2002

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PLANT ID.		HP-41	–	–																				
NAME		SAFETY SHOWER HEAD TANK	OUTSIDE SAFETY SHOWER/EYEWASH	INSIDE SAFETY SHOWER/EYEWASH																				
DESCRIPTION	MATERIAL	GALV. STEEL	HEATED INSUL.	GALV. STEEL																				
	SIZE	4' DIA. x 5' H	–	–																				
	CAPACITY	525 GPM	–	–																				
	TEMP/PRESS	–	–	–																				
	HP/V/RPM	–	–	–																				
	WEIGHT	–	–	–																				
	MANUFACTURE	QUICK TANK	INDUCTION	–																				
	MODEL	–	–	–																				
	VENDOR	–	–	–																				



SAFETY SHOWER / EYE WASH LEGEND

STATION	TYPE	LOCATION
1	INDUCTION HEATED	CAUSTIC STORAGE AREA
2	INDUCTION HEATED	LEACHATE STORAGE DIKE AREA
3	INDOOR	BOILER ROOM
4	INDOOR	CARBON BEDS
5	INDOOR	FILTER PRESS ROOM
6	INDOOR	CHEMICAL ADDITION SYSTEMS AREA
7	INDOOR	SETTLER SLUDGE FILTER ROOM
8	INDOOR W/ FLOOR DRAIN	pH ADJUSTMENT TANK
9	INDUCTION HEATED	CAUSTIC UNLOADING STATION
10	INDUCTION HEATED	LEACHATE STORAGE DIKE

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION

CONESTOGA-ROVERS & ASSOCIATES

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM

PIPING AND INSTRUMENTATION DIAGRAM
UTILITIES – SAFETY SHOWERS

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ NO 01069-00	A-01069-00-33	

01069-00(000)EF-NF033 MAY 07/2002

PLANT ID.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NAME																							
DESCRIPTION: MATERIAL																							
SIZE																							
CAPACITY																							
TEMP/PRESS																							
HP/V/RPM																							
WEIGHT																							
MANUFACTURE																							
MODEL																							
VENDOR																							

INSIDE SOUTH SIDE

SHEET 31 DRY AIR RECEIVER

B-2"RIE-GMD-220

PI 115

CH171-1/ BA714-1½" B-1½" RIE-GMD-207

CARBON BEDS (INTERMITTENT)
A-11-01069-00-21
A-11-01069-00-22

CH171-1½" BA714-1½" B-1½" RIE-GMD-208

BA714-1½" B-1 ½"RIE-GMD-210

BA714-1½" B-1 ½"RIE-GMD-211

CH171-¾" BA714-¾" B-¾"RIE-GMD-212

INSTRUMENT AIR (MAXIMUM)

B-2"RIE-GMD-220

SHEET 31 INSTRUMENT AIR DRYER

PI 115 B-2"RIE-GMD-202

2"x1½"

B-1 1/2"RIE-GMD-201

PI 115

INSIDE NORTH SIDE

BA714-¾" CH171-¾" B-¾"RIE-GMD-223

BA714-1 ½" B-1½"RIE-GMD-203

PI 115

B-2"RIE-GMD-202

CH171-¾" BA714-¾" B-¾"RIE-GMD-205

SETTLER SLUDGE PUMP (CONTINUOUS)
A-11-01069-00-24

CH171-1" BA714-1" B-1"RIE-GMD-206

CH171-¾" BA714-¾" B-¾"RIE-GMD-207

INSTRUMENT AIR (MAXIMUM)

BA714-¾"

CH171-¾" B-¾"RIE-GMD-234

PCV 544

PI 480

BA714-¾"

BA714-¾" B-¾"RIE-GMD-234 INSIDE NORTH SIDE 1st FLR

BA714-¾" B-¾"RIE-GMD-235 INSIDE NORTH SIDE 1st FLR

PI 481

BA714- ½"

BA714-½" B-¾" RIE-GMD-236 1st FLOOR

PCV 545

BA714-¾" CH171-¾" B-¾"RIE-GMD-236

BA714-¾" B-¾" RIE-GMD-237 1st FLOOR

B-2"RIE-GMD-200

OUTSIDE

BA714-¾" B-¾"RIE-GMD-221

CH171-1" BA714-1" B-1"RIE-GMD-213

1½"x ¾"

BA714- ¾" B-¾"RIE-GMD-213

INSTRUMENT AIR (MAXIMUM)

PI 482

BA714-½"

BA714-½" B-¾"

PCV 546

BA714- ¾" CH171- ¾" B ¾"RIE-GMD-213

BA714-¾"

CONESTOGA-ROVERS & ASSOCIATES

REV. NO.	REV. DATE	CHK'D BY	DESCRIPTION
1	3/02		REMOVED SLUDGE FILTER

MILLER SPRINGS REMEDIATION MANAGEMENT INC.
HYDE PARK REMEDIAL PROGRAM
PIPING AND INSTRUMENTATION DIAGRAM
PLANT/INSTRUMENT

DRAWN	SCALE NONE	APPROVED	DRAWING NUMBER	REV
DATE	CHK'D	PROJ. NO. 01069-00	A-01069-00-34	1

01069-00(000)EF-NF034 JUL 26/2002