

**Reiber, Loretta**

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**From:** Whitmore, Randall <Randall.Whitmore@chemtura.com>  
**Sent:** Wednesday, March 13, 2013 2:38 PM  
**To:** Reiber, Loretta  
**Cc:** Vince Blubaugh; Russell McLaren  
**Subject:** Changes to GLCC Outfalls 002 and 004 AR0001171  
**Attachments:** PlastifabParshallFlume-Bulletin.pdf; isco6712FRSampler.pdf; ISCO780  
\_Analog\_Module.pdf; GLCC Outfall Monitoring.pdf

Loretta, We are going to install Iso Samplers and flumes at the 002 and 004 outfalls here at GLCC's Central Plant. I have attached the information on the equipment and diagram of the proposed construction details. I hope to start work on this within the next two weeks. I know you will need to include this in the draft permit. If you need anything else from me just let me know.

Thanks

rw

Randall Whitmore  
Environmental Manager  
Great Lakes Chemical Corporation  
870-310-1165 cell  
870-864-1587 office



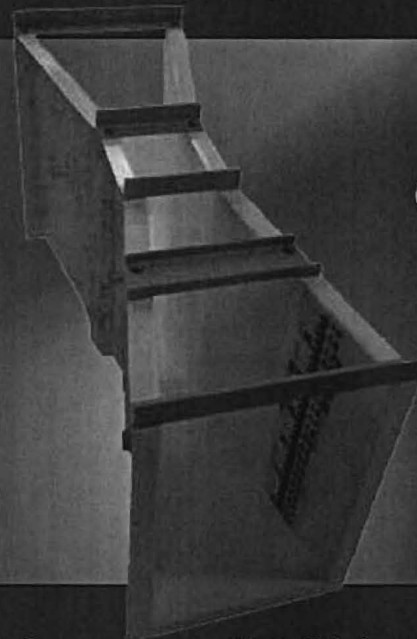
**For a Better Tomorrow**

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# PARSHALL FLUMES

Wide Flow Range  
Dimensionally Stable  
Excellent Resolution  
Maintenance Free  
Engineered & Built to Order

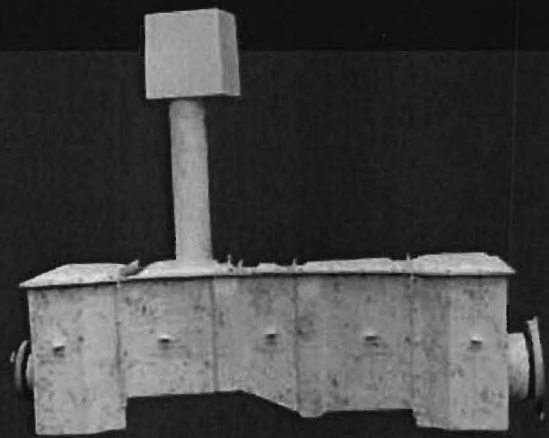


25 year  
Corrosion  
Warranty

As a leader in the flume fabrication revolution that began over forty years ago, Plasti-Fab has thousands of flumes installed in corrosive environments around the world. Plasti-Fab products are fabricated from highly corrosion resistant composite fiberglass reinforced plastic (FRP) with a 25 year corrosion warranty. Plasti-Fab is recognized around the world as an experienced innovator providing composite solutions for municipal and industrial fluid measurement applications.

## KEY FEATURES

- Precise throat dimensions for accurate flow measurement
- Standard 1/4" wall thickness
- Premium grade isophthalic gel coat for long term corrosion resistance
- Head Gage for visual fluid level check
- Reinforced with engineered box rib design for strength on larger size
- Free standing with up to 30" of water depth
- The most widely used water measurement flume

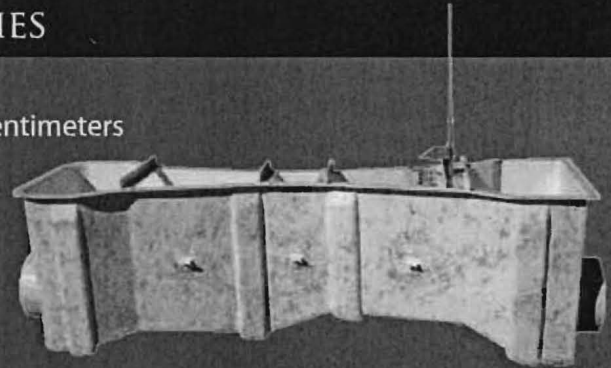


FOR OUR COMPLETE  
PRODUCT CATALOG  
VISIT US ONLINE AT  
[WWW.PLASTI-FAB.COM](http://WWW.PLASTI-FAB.COM)

## DESIGN FEATURES AND ACCESSORIES

### CONVENIENT FEATURES & ACCESSORIES

- Parshall Flumes standard with:
  - Molded in Head Gage of 100ths of a Foot and Centimeters
  - Anchor Clips
  - Temporary Spreaders
  - 2" Flange on top and ends
  - Premium grade Isophthalic Gel Coat
- Available with:
  - Inlet Adapter with Pipe Stub
  - Inlet Adapter to bolt to Vault Wall
  - Inlet Wingwalls
  - Outlet Adapter with Pipe Stub
  - Outlet Adapter to bolt to Vault Wall
  - Outlet Bulkhead
- Standard Optional Accessories:
  - Ultrasonic mounting Bracket
  - pH Probe Cavity with Liftout Bracket
  - Bubble pipe with Cavity
  - Sample pipe with Cavity
  - Pressure Transducer Cavity
  - Integral or remote Stilling Well



- Additional customization options:
  - Threaded Taps
  - Permanent Cross Ties
  - Caulking Collars
  - Slip Flanges with 150 lb. bolting connections
  - Neoprene Boots with Stainless Steel Bands
  - Head Gages in MGD, GPM, CFS, Etc.
  - Capacitance Probe Side Cavity with Stainless Steel Ground Plate
  - Top Grating
  - Sectioning for undersized openings
  - Nesting smaller flume
  - Two Vial Bubble Level
  - Tranquilizing Racks
  - Energy Absorbing Basins
  - Many specially engineered solutions available, such as integration into Packaged Metering Manholes -- consult representative or factory



The Plasti-Fab line of flumes is THE premier line of flumes available for measurement of fluids. Precisely molded throat dimensions make it possible for consistent and accurate flow measurement. All Composite materials are guaranteed against corrosion for 25 years.

CONTACT US FOR MORE INFORMATION

PLASTI-FAB, INC.  
P.O. BOX 100  
TUALATIN, OR 97062-0100  
(503) 692-5460  
SALES@PLASTI-FAB.COM

WWW.PLASTI-FAB.COM



## Isco 6712FR Fiberglass Refrigerated Sampler

The 6712FR is a sequential or composite refrigerated sampler designed for indoor or outdoor applications where rugged, corrosion-resistant construction is required. The extensive range of programming modes lets you select the most suitable routine for your application. Programming is fast and simple, with on-line help just a key stroke away.

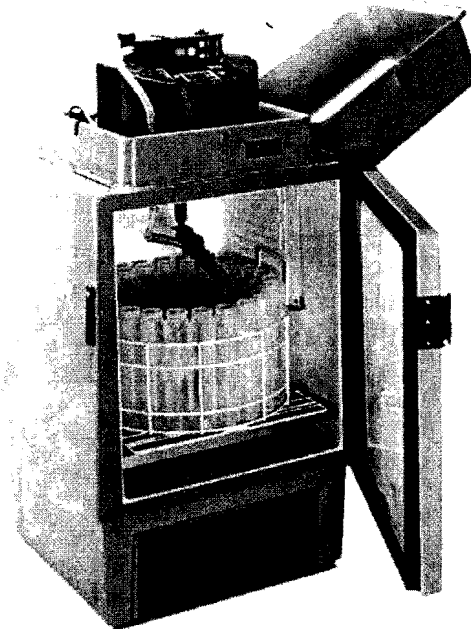
The environmentally-sealed 6712 controller delivers maximum accuracy and easily handles all of your sampling applications, including:

- ◆ wastewater effluent
- ◆ stormwater monitoring
- ◆ CSO monitoring
- ◆ permit compliance
- ◆ pretreatment compliance

In the Standard Programming Mode, the controller walks you through the sampling sequence step-by-step, allowing you to choose all parameters specific to your application. Selecting the Extended Programming Mode lets you enter more complex programs.

### *Factory installed options*

An optional built-in telephone modem lets you change programs and download data remotely, from a touch-tone phone. It also has dial-out alarm features.



For automatic documentation of sample storage temperature, specify the 6712FR with optional temperature sensor. With this thermally ballasted sensor, the 6712 controller can log compartment temperatures at programmable intervals with 0.1°C precision.

### *Versatile, Tough, and Reliable*

Isco FR samplers feature a corrosion-proof refrigerator cabinet molded from polyester resin fiberglass and supported by a stainless steel frame. A UV-resistant gel coat provides a smooth, non-porous finish for added protection and easy cleaning.

The 6712FR uses thick, foamed-in-place insulation to keep samples preserved at the EPA-recommended 39°F (4°C). An automatically controlled, built-in heater ensures that samples won't freeze, even when ambient temperatures drop to -20°F (-29°C). Coolant is environmentally safe R134a. Durable powder-coated epoxy, phenolic paint, and polyester tubing, protect refrigeration components against corrosion.

*The 6712FR provides long service life in corrosive environments, and can be used outdoors without an enclosure.*

## Specifications

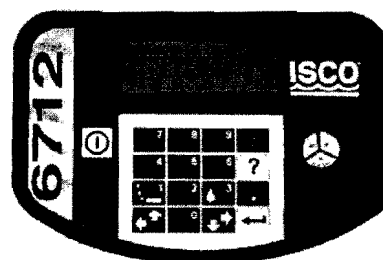
Isco 6712FR	
Size (HxWxD):	49.3 x 26 x 26 inches (125 x 66 x 66 cm)
Weight:	Dry, 160 lbs (73 kg)
Bottle configurations:	24 1-liter PP or 350-ml glass 24 ProPak 1-liter disposable sample bags 12 2.5-liter wedge PE 8 2-liter PE or 1.8-liter glass. 2 2-gallon (7.5-liter) PE or 2.5-gallon (9.4-liter) glass 1 2.5-gallon (9.4 liter) PE or glass 1 4-gallon (15-liter) PE 1 5.5-gallon (21-liter) PE or 5 gallon (19 liter) glass
Refrigerator Body	Fiberglass reinforced plastic with UV-resistant gel coat
Power Requirements:	120 VAC, 60 Hz; or 240 VAC, 50 Hz (specify)
Pump	
Intake suction tubing:	
Length	3 to 99 feet (1 to 30 m)
Material	Vinyl or Teflon
Inside dimension	3/8 inch (1 cm)
Pump tubing life:	Typically 1,000,000 pump counts
Maximum lift:	28 feet (8.5 m)
Typical Repeatability	±5 ml or ±5% of the average volume in a set
Typical line velocity at Head height: of	
3 ft. (0.9 m)	3.0 ft./s (0.91 m/s)
10 ft. (3.1 m)	2.9 ft./s (0.87 m/s)
15 ft. (4.6 m)	2.7 ft./s (0.83 m/s)
Liquid presence detector:	Non-wetted, non-conductive sensor detects when liquid sample reaches the pump to automatically compensate for changes in head heights.

Controller	
Weight:	13 lbs. (5.9 kg)
Size (HxWxD)	10.3 x 12.5 x 10 inches (26 x 31.7 x 25.4 cm)
Operational temperature:	32° to 120°F (0° to 49°C)
Enclosure rating:	NEMA 4X, 6 (IP67)
Program memory:	Non-volatile ROM
Flow meter signal input:	5 to 15 volt DC pulse or 25 millisecond isolated contact closure.
Number of composite samples:	Programmable from 1 to 999 samples.
Clock Accuracy:	1 minute per month, typical, for real time clock
Software	
Sample frequency:	1 minute to 99 hours 59 minutes, in 1 minute increments. Non-uniform times in minutes or clock times 1 to 9,999 flow pulses
Sampling modes:	Uniform time, non-uniform time, flow, random interval event. (Flow mode is controlled by external flow meter pulses.)
Programmable sample volumes:	10 to 9,990 ml in 1 ml increments
Sample retries:	If no sample is detected, up to 3 attempts; user selectable
Rinse cycles:	Automatic rinsing of suction line up to 3 rinses for each sample collection
Program storage:	5 sampling programs
Sampling Stop/Resume:	Up to 24 real time/date sample stop/resume commands
Controller diagnostics:	Tests for RAM, ROM, pump, display, and distributor

## Ordering Information

*Note: Bottle configuration, suction line, and strainer must be ordered separately. Many options and accessories are available for 6712 Samplers; see separate literature for 700 Series Modules and other components to expand your monitoring capabilities.*

Description	Part No.
6712FR Refrigerated Sampler, 120VAC 60Hz Includes controller, distributor arm, instruction manual, pocket guide.	68-6710-072
6712FR Refrigerated Sampler, 230VAC 50Hz includes controller, distribution arm instruction manual, pocket guide.	68-6710-073
6712FR with temperature logging, 120VAC 60Hz As above, with internal temperature sensor	68-6710-144
6712FR with temperature logging, 230VAC 50Hz As above, with internal temperature sensor	68-6710-145



*The 6712 Controller is also an SDI-12 data logger, and has many optional capabilities. Please contact Isco or your Isco distributor for more information.*

**ISCO®**  
Water is life. Protect it.

**Teledyne Isco, Inc.**

4200 Superior Street  
Lincoln NE 68504 USA  
Phone: (402) 464-0231  
USA and Canada: (800) 228-4373  
Fax: (402) 465-3022  
E-Mail: [iscoinfo@teledyne.com](mailto:iscoinfo@teledyne.com)  
Internet: [www.isco.com](http://www.isco.com)

## Isco 780 Smart 4-20 Analog Interface Module

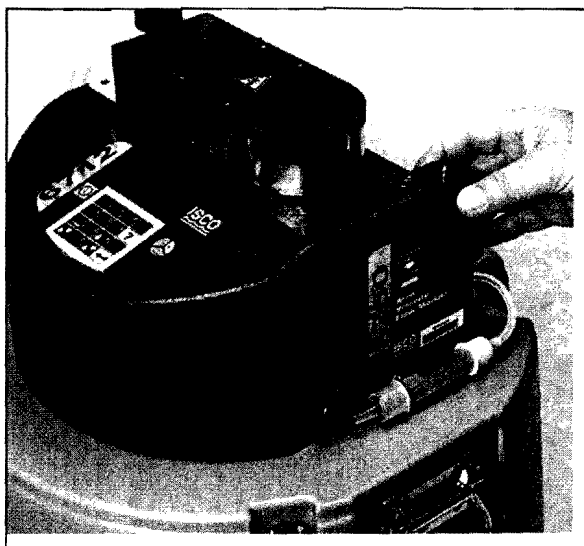
### *Add Intelligence to your Analog Signal*

The 780 Smart 4-20 Module gives your Isco 6700 Series or Avalanche® Sampler the capability to interpret analog data from other equipment that you already own. For example, if you have flow meters that output a 4-20 mA signal, the 780 Module allows you to use that flow signal to pace your sampler.

The 6700, 6712, or Avalanche sampler with 780 module also converts the flow-proportional signal into selectable flow units, which can be displayed as real time flow rate and totalized flow. The sampler also stores the data for future retrieval and analysis using Isco Flowlink® Software.

If the signal is not a flow proportional signal, real time information is still displayed, but in a simple, easy-to understand percentage of full scale. This signal can then be used to initiate sampling routines or individual samples.

Connection to the analog signal is also a snap. The Model 780 comes with a cable with twin leads attached. Simply connect it to your analog signal and program the sampler for proper operation.



### *Applications*

- ◆ An Isco 6700, 6712, or Avalanche Sampler with 780 module can interpret any 4-20 analog signal, use the data to pace sampling, and store the data digitally for later retrieval and analysis.
- ◆ When connected to a flow meter with 4-20 mA output, the 780 module enables sampler pacing in actual flow units instead of an arbitrary number of flow pulses.

*Simply plug one of the 700 Series Modules into your 6712 or Avalanche Sampler to expand your monitoring capabilities. These environmentally-sealed modules can be interchanged in the field, and can be added to your compatible Isco Sampler (portable or refrigerated) at any time.*



## Specifications

<b>Isco 780 Smart Analog Output Module</b>	
<b>Size (HxWxD):</b>	4.9 x 5.7 x 2.0 in. (12.4 x 14.5 x 5.1 cm)
<b>Weight:</b>	1.1 lbs. (0.5 kg)
<b>Material:</b>	Polystyrene
<b>Enclosure:</b>	NEMA 4X, 6 IP67
<b>Power:</b>	provided by 6700 Series Sampler
<b>Operating Temperature:</b>	32° to 120°F (0° to 49°C)
<b>Storage Temperature:</b>	0° to 140°F (-18° to 60°C)
<b>Data interval:</b>	Programmable through the sampler at 1, 2, 5, 10, 15, or 30 minutes
<b>Accuracy:</b>	±0.5%
<b>Resolution:</b>	±0.1%

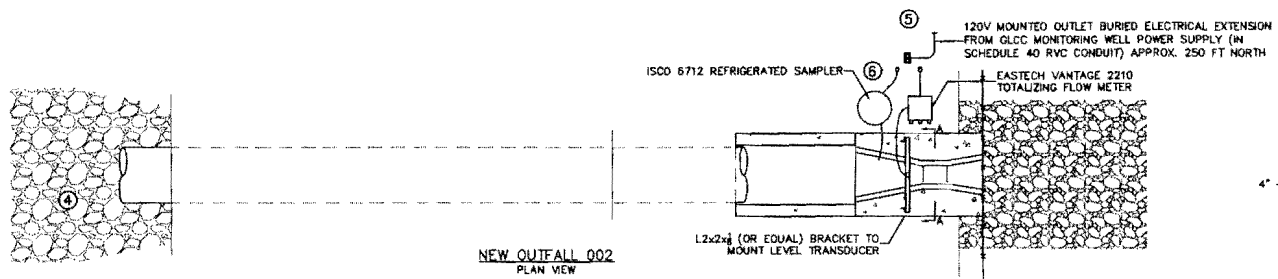
## Ordering Information

<b>Description</b>	<b>Part Number</b>
780 Analog Interface Module. Includes 10 ft. cable and instruction manual.	60-9004-040

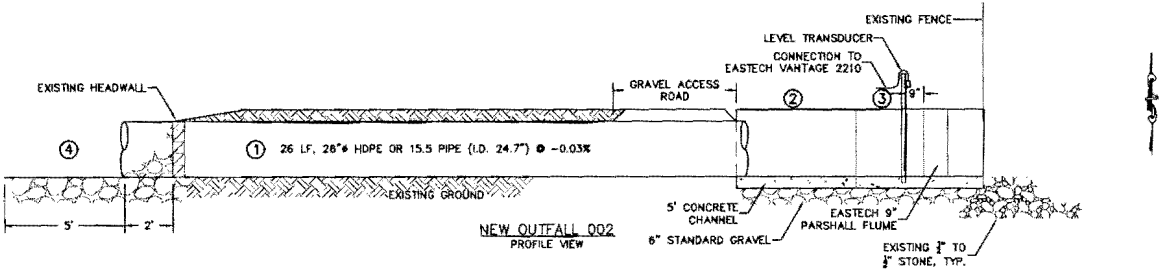
*The 780, and other 700 Series Modules, are compatible with Isco's Avalanche® portable refrigerated samplers.*



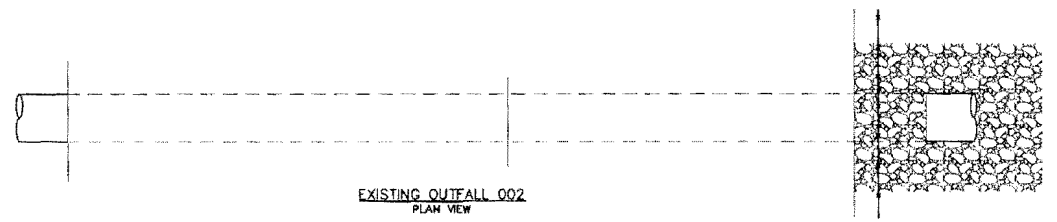
4700 Superior Street  
Lincoln NE 68504 USA  
Tel: (402) 464-0231  
USA and Canada: (800) 228-4373  
Fax: (402) 465-3022  
E-Mail: [iscoinfo@teledyne.com](mailto:iscoinfo@teledyne.com)  
Internet: [www.teledyneisco.com](http://www.teledyneisco.com)



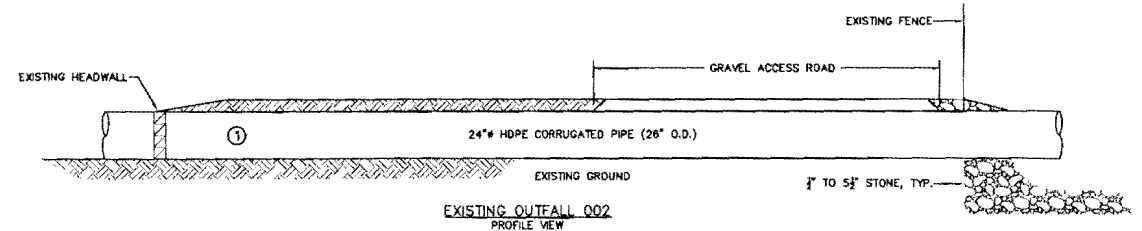
NEW OUTFALL 002  
PLAN VIEW



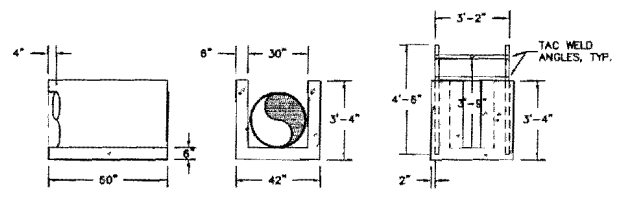
NEW OUTFALL 002  
PROFILE VIEW



EXISTING OUTFALL 002  
PLAN VIEW



EXISTING OUTFALL 002  
PROFILE VIEW



5' CONCRETE CHANNEL  
DETAIL

VIEW A-A  
LEVEL TRANSDUCER BRACKET

CONSTRUCTION NOTES:

- ① REMOVE EXISTING CORRUGATED HDPE PIPE.
- ② EXCAVATE ROAD TO INSTALL PARSHALL FLUME AND 5' CONCRETE CHANNEL SECTION AS SHOWN. THESE ITEMS MUST BE INSTALLED LEVEL. BACKFILL AROUND CAST IN PLACE CONCRETE WITH NATIVE MATERIAL.
- ③ INSTALL LEVEL TRANSDUCER BRACKET AS SHOWN. ENSURE THE LEVEL TRANSDUCER IS INSTALLED 9" BACK FROM SMALLEST SECTION OF THE FLUME AND A MINIMUM OF 29" ABOVE THE FLOOR OF THE FLUME.
- ④ PLACE WITH 28" DR 13.5 HDPE PIPE @ -0.03% SLOPE AS SHOWN. PLACE 1/2" TO 5/8" STONE AT PIPE INLET AND ALONG BANK AROUND PIPE INLET AS SHOWN.
- ⑤ PROVIDE POWER, FROM THE MONITORING WELL LOCATED APPROX. 50 FT NORTH, BY AN UNDERGROUND CABLE ENCASED IN PVC PIPE.
- ⑥ CONTACT SELTECH INC. FOR INSTRUMENTATION INSTALLATION (501-614-9699). CONTACT TELEDYNE ISCO FOR PROGRAMMING QUESTIONS (501-282-3282). SAMPLER SHALL BEGIN TO RETRIEVE A SAMPLE AFTER THE WATER LEVEL IN THE FLUME HAS RAISED ABOVE 1". CONTRACTOR AND VENDOR SHALL ENSURE THE FLOW METER IS A TOTALIZING FLOW METER FROM WHICH DATA CAN BE EXTRACTED.

NO	DATE	REVISION	BY	CHK	APPR.

DESIGNED BY	SYB
CHECKED BY	SRL
APPL. BY	CDC
DRAWN BY	JT



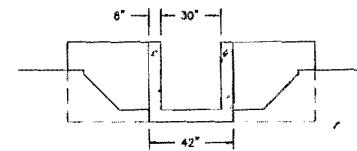
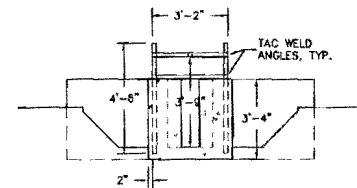
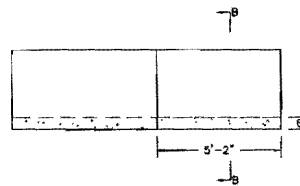
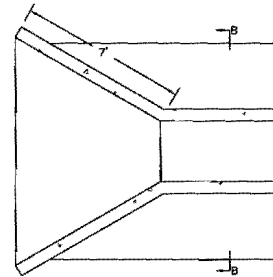
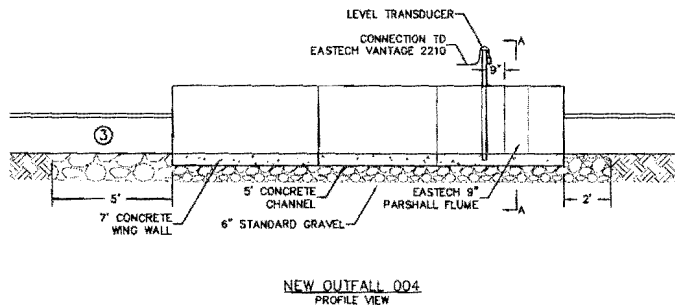
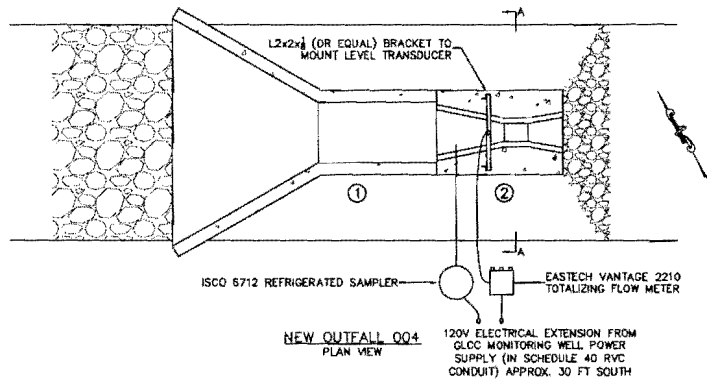
SHEET TITLE  
**OUTFALL 002 LAYOUT**

PROJECT NO.  
**GLCC OUTFALL MONITORING**

GREAT LAKES CHEMICAL COMPANY  
EL DORADO, ARKANSAS

PROJECT NO.	2072-12-260	REV. NO.	
DATE	06/25/2012	REV. NO.	
SCALE	MTS	REV. NO.	S1





**CONSTRUCTION NOTES:**

- ① EXCAVATE STORM WATER DITCH TO INSTALL PARSHALL FLUME AND CONCRETE CHANNEL AS SHOWN. THE 5' CONCRETE CHANNEL SECTION AND PARSHALL FLUME MUST BE INSTALLED LEVEL. BACKFILL AROUND CAST IN PLACE CONCRETE WITH NATIVE MATERIAL.
- ② INSTALL LEVEL TRANSDUCER BRACKET AS SHOWN. ENSURE THE LEVEL TRANSDUCER IS INSTALLED 9" BACK FROM SMALLEST SECTION OF THE FLUME AND A MINIMUM OF 29" ABOVE THE FLOOR OF THE FLUME.
- ③ PLACE 1/2" TO 5/8" STONE AT CONCRETE CHANNEL INLET AS SHOWN.
- ④ PROVIDE POWER, FROM THE MONITORING WELL LOCATED APPROX. 30 FT SOUTH, BY AN UNDERGROUND CABLE ENCASED IN PVC PIPE.
- ⑤ CONTACT SELTECH INC. FOR INSTRUMENTATION INSTALLATION (501-614-9699). CONTACT TELEDYNE ISCO FOR PROGRAMMING QUESTIONS (501-262-3282). SAMPLER SHALL BEGIN TO RETRIEVE A SAMPLE AFTER THE WATER LEVEL IN THE FLUME HAS RAISED ABOVE 1". CONTRACTOR AND VENDOR SHALL ENSURE THE FLOW METER IS A TOTALIZING FLOW METER FROM WHICH DATA CAN BE EXTRACTED.

NO.	DATE	REVISION	BY	CK.	APPR.

DESIGNED BY SYB
CHECKED BY SRL
APPR. BY CDC
DRAWN BY IT



PROJECT NAME	OUTFALL 004 LAYOUT
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JOB NAME	GLCC OUTFALL MONITORING
CLIENT	GREAT LAKES CHEMICAL COMPANY EL DORADO, ARKANSAS

PROJECT NO.	2012-12-280	REV. NO.	
DATE	09/25/2012	DATE	
SCALE		SCALE	
	NTS		S2