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GROUND-WATER/SURFACE-WATER INVESTIGATION PLAN PHASE 1 REMEDIAL INVESTIGATION FINAL REPORT

Volume 3 of 5
Appendices A and B

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VOLUME 3

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STANDARD OPERATING PROCEDURE FOR MEASURING WATER TEMPERATURE

1.0 CALIBRATION

1.1 Calibration of thermometers will be performed before entering the field and checked upon return to the office.

1.2 Thermometers will be calibrated against a National Bureau of Standards (NBS) - traceable thermometer.

1.3 The thermometer must read within 1° - 1.5° C of the NBS - traceable thermometer. If the thermometer does not read within this range and the thermometer cannot be calibrated, then it will not be used for temperature measurements and will be disposed of in an appropriate manner. If the thermometer does not read within this range and the thermometer can be calibrated, then the thermometer will be calibrated to the NBS-traceable thermometer.

1.4 The following information is documented in the calibration logbook at the time of calibration:

a. Date
b. Thermometer Identification
c. Initials

2.0 PROCEDURE

2.1 The thermometer is immersed in water until the temperature equilibrates. The temperature is read in °C.

2.2 Temperature data are recorded in the field notebook, and initialed and dated.

STANDARD OPERATING PROCEDURE FOR MEASURING THE pH OF WATER SAMPLES

1.0 CALIBRATION

1.1 Calibration of the pH meter is to be performed prior to its use.

1.2 Re-calibration must occur if: (1) the pH of the samples being measured is outside the previous calibration range, (2) the procedure or use conditions warrant frequent calibrations, (3) four or more hours have elapsed, or (4) the instrument has been moved from one area to another.

1.3 Two buffer calibrations bracketing the expected pH range of samples are to be performed prior to its use in a study. Three pH buffers (4.0, 7.0, and 10.0) are read after standardization at pH of 7.0 to evaluate the linearity and electrodes. The measurements of sample and buffers must be made while stirring. The samples and buffers are measured at the same temperature.

1.4 The following information is documented in the calibration logbook at the time of calibration:

a. Date.
b. pH meter identification.
c. Initials.
d. Calibration results using pH standards.

2.0 PROCEDURE

2.1 No warm-up period is necessary if the instrument is kept in the standby (STBY) mode. A half-hour warm-up is required if the instrument is unplugged.

2.2 The pH electrodes must be kept in good working order as follows:

a. Proper levels of electrolyte solution are maintained. The electrolyte solution level should be at least 1 inch above the solution being measured.

b. The electrodes must be carefully rinsed with deionized water before each measurement.

2.3 The electrodes are immersed in a water sample and stirred continuously until the pH reading equilibrates.

2.4 Pertinent data are documented in the field notebook, and initialed and dated.

2.5 The electrodes are rinsed with deionized/distilled water and the unit stored properly (capping and storing in a buffer such as altex electrode storage solution). The electrodes are not to be stored in tap water or deionized/distilled water.

STANDARD OPERATING PROCEDURE FOR MEASURING WATER LEVELS WITH A STEEL TAPE

1.0 PROCEDURE

1.1 The steel tape must be pre-cleaned (decontaminated) using a non-phosphate, laboratory-grade solution and distilled/deionized water.

1.2 If the well is being sounded (depth measured), then lower the tape to the bottom of the well and measure its length.

1.3 If a water-level measurement is to be taken, then apply chalk (e.g., carpenter's chalk) to the bottom few feet of the tape and lower it into the water. Hold the top of the tape at an even foot-increment at the measuring point, roll up the tape, and note the cut (i.e., the mark between the dry and wet chalk).

1.4 Measurements will be taken to the nearest 0.01 foot.

1.5 All pertinent data will be recorded in the field notebook, and initialed and dated.

STANDARD OPERATING PROCEDURE FOR MEASURING WATER LEVELS USING AN M-SCOPE

1.0 PROCEDURE

1.1 The m-scope must be pre-cleaned (decontaminated) using a non-phosphate, laboratory-grade solution and distilled/deionized water before use.

1.2 The manufacturer's model should be noted because some have switches, lights, beepers, or a combination of the above.

1.3 The water-level measurement is taken by lowering the probe into the well until the instrument-specific detection method (e.g., light, beeper, or both) is activated by contacting the water.

1.4 Measurements will be taken accurately and to the nearest 0.01 foot.

1.5 All pertinent data will be documented in the field notebook, and initialed and dated.

STANDARD OPERATING PROCEDURE FOR MEASURING THE CONDUCTIVITY OF WATER SAMPLES

1.0 CALIBRATION

1.1 Calibration is in accordance with the manufacturer's specific directions, and the following information is documented in the calibration logbook:

a. Date.
b. Conductivity meter identification.
c. Calibration results.
d. Initials.

2.0 PROCEDURE

2.1 The probe is immersed in a water sample until the meter equilibrates.

2.2 In reading the conductivity meter scale, one or more of the following may have to be considered:

a. The reading may have to be multiplied appropriately (e.g., the reading is expressed in micromhos/centimeter).

b. If the conductivity meter is not capable of compensating for temperature differences, then note that the conductance measurements are not temperature compensated and document the temperatures.

c. If the conductivity meter can be compensated for temperature, then adjust the temperature control before reading the conductance measurement.

2.3 Conductivity measurements and any other relevant information are recorded in the field notebook, and initialed and dated.

STANDARD OPERATING PROCEDURE FOR DECONTAMINATION OF FIELD EQUIPMENT

1.0 PROCEDURE FOR DRILLING EQUIPMENT

The following is a decontamination procedure for drilling equipment. Any variation from this method will be documented on an appropriate field form or notebook.

1.1 The rig and all associated equipment should be properly decontaminated before arriving at the test site.

1.2 The augers, drilling casings, rods, samplers, tools, rig, and any piece of equipment that can come in contact (directly or indirectly) with the soil, will be high pressure hot water washed on site prior to set up for drilling to ensure proper decontamination.

1.3 The same high pressure hot water wash procedures will be followed between boreholes (at a fixed on-site location, if appropriate) and before leaving the site at the end of the study.

1.4 All on-site high pressure hot water washing (decontamination) activities will be monitored by the field hydrogeologist.

2.0 PROCEDURE FOR SOIL-SAMPLING EQUIPMENT

The following is a decontamination procedure for soil sampling equipment (e.g., split spoons, stainless steel spatulas).

2.1 Wear disposable gloves while cleaning equipment to avoid contamination and change gloves as needed.

2.2 High pressure hot water wash the split-spoon sampler, or rinse with distilled or deionized water.

2.3 Prepare a non-phosphate, laboratory-grade detergent solution and distilled or deionized water in a bucket.

2.4 Disassemble the split-spoon sampler and immerse all parts and other sampling equipment in the solution.

2.5 Scrub all equipment in the bucket with a brush to remove any adhering particles.

2.6 Rinse all equipment with distilled or deionized water.

2.7 Rinse all equipment with 10% nitric acid (to remove metals).

2.8 Rinse all equipment with distilled or deionized water.

2.9 Rinse all equipment with hexane (to remove pesticides/PCBs).

2.10 Rinse all equipment with distilled or deionized water.

2.11 Rinse all equipment with methanol (to remove volatile organic compounds).

2.12 Rinse all equipment three times with distilled or deionized water.

2.13 Place clean equipment on a clean plastic (e.g., polyethylene) sheet.

2.14 Reassemble the cleaned split-spoon sampler.

2.15 Transfer the sampler to the driller (or helper) making sure that this individual is also wearing clean gloves, or wrap the equipment with a suitable material (e.g., plastic bag, aluminimum foil).

3.0 PROCEDURE FOR WATER SAMPLING EQUIPMENT

The following is a decontamination procedure for water sampling equipment (e.g., non-disposable bailers).

3.1 Wear disposable gloves while cleaning bailer to avoid contamination and change gloves as needed.

3.2 Prepare a non-phosphate, laboratory-grade detergent solution and distilled or deionized water in a bucket.

3.3 Disassemble bailer (if applicable) and scrub each part with the detergent and water using a brush.

3.4 Rinse with distilled or deionized water and reassemble bailer.

3.5 Rinse bailer with 10% nitric acid (to remove metals).

3.6 Rinse bailer with distilled or deionized water.

3.7 Rinse bailer with hexane (to remove pesticides/PCBs)

3.8 Rinse bailer with distilled or deionized water.

3.9 Rinse bailer with methanol (to remove volatile organic compounds).

4.0 Rinse bailer with distilled or deionized water.

4.1 Air dry.

4.2 Wrap equipment with a suitable material (e.g., clean plastic bag, aluminum foil).

4.3 Rinse bailer at least three additional times with distilled or deionized water before use.

STANDARD OPERATING PROCEDURE FOR GROUND-WATER MONITORING WELL DRILLING, FORMATION SAMPLING, AND CONSTRUCTION DEVELOPMENT

1.0 DESCRIPTION OF DRILLING TECHNIQUE

1.1 Roux Associates has chosen to drill the ground-water monitoring wells using the hollow-stem auger - This drilling method is rapid and extremely effective in most cohesive sediments but less so in loose sandy material.

2.0 PROCEDURE FOR FORMATION SAMPLING

2.1 Intact formation samples will be collected using a split-spoon sampler. A standard 140-pound in-hole wire line hammer will be used to advance the split-spoon sampler. The number of blow counts (i.e. the hammer dropping 30 inches) will be recorded for each 6-inch interval.

2.2 Continuous split-spoon samples will be collected in each borehole.

2.3 The soil cores from the wells drilled at the site will be used for confirmatory lithologic identification.

2.4 Before collecting and retaining soil and/or sediments collected with the split-spoon sampler, the top several inches will be removed from the sampler and discarded to eliminate any sediment that may have caved into the bottom of the borehole.

2.5 Sediment sampling equipment such as split-spoon samplers, spatulas, etc. will be decontaminated according to the standard protocols.

2.6 Bedrock will be cored 5 feet to confirm the bedrock surface. Each core will be described in detail. If the bedrock appears weathered at a depth of 5 feet, the core will be advanced to a depth of 10 feet below land surface.

3.0 DESCRIPTION OF MONITORING WELL CONSTRUCTION

3.1 The installation of each monitoring well will begin immediately after borehole completion. In cases of unscheduled delays, such as personal injury, equipment breakdowns or sudden inclement weather, installation will be resumed as soon as practical.

3.2 The monitoring well will be constructed of 4-inch diameter PVC casing and screen. A generalized well construction diagram is included as Figure E-3.

3.3 Monitoring wells in unconsolidated formations will be set as follows:

a. The screen and casing will be lowered into the borehole to the appropriate depth.

b. A gravel pack (quartz sand) is filled in around the screen to several feet above the screened interval (to allow for potential settlement during subsequent development).

c. A bentonite pellet seal will be placed above the clean silica sand pack.

d. A locking steel protective casing or curb box is set over the well and cemented in place. The protective case, or curb box is designed to prevent water from ponding at the top of the well or directly entering the well.

3.4 Each well will be properly identified with the appropriate information (e.g., local well number, state and/or permit number, etc. A notch will be made in the top of the PVC casing to be utilized as the measuring point. Water levels will be measured from this notch. The measuring point will be surveyed to the nearest 0.01 foot relative to a datum (e.g., mean sea level) by a professional, state-licensed surveyor.

3.5 Each well will have a well construction log showing the casing placement and materials used to fill the annular space between the well casing and borehole. The appropriate log will show the depths of each casing material and discuss the geologic variability at the site. A description of the surface soils and unsaturated zone materials down to and including the water table is required.

The following information, if applicable, will be included on the well log:

a. Project number.
b. Date and initials of scientist documenting the well information.
c. Date/time of construction.
d. Well location.
e. Well/permit number.
f. Borehole diameter.
g. Well depth.
h. Casing material.
i. Screen material.
j. Screen slot size/length.
k. Gravel pack/type size (depths from ____ to ____).
l. Sand pack (depths from ____ to ____).
m. Bentonite pellets (depths from ____ to ____).
n. Bentonite slurry (depths from ____ to ____).
o. Cement/grout (depths from ____ to ____).
p. Ground-surface elevation.
q. Well height above/depth below land surface.
r. Depth ground water encountered.

4.0 DESCRIPTION OF WELL DEVELOPMENT

4.1 Before a newly constructed well can be used for water-quality sampling, it must be developed. Well development refers to the procedure used to clear the well and formation around the screen of fine-grained materials (sands, silts, and clays) produced during drilling or naturally occurring in the formation. Well development continues until the well responds to water-level changes in the formation (i.e, a good hydraulic connection is established between the well and formation and the well produces clear, sediment-free water to the extent practical).

4.2 Wells will be developed by either surging and bailing, or pumping (centrifugal, submersible, etc.).

4.3 A one-pint sample of the last water removed during development will be obtained and inspected by the field hydrogeologist for relative clarity to determine whether development is complete. Well development procedures will be documented in the field notebook.

4.4 Dispersing agents, acids, disinfectants, or other additives will not be used during development nor will they be introduced into the well at any other time. During development, water will be removed from the entire column of water standing in the well (e.g., by periodically lowering and raising the pump intake). Well development will include the rinsing of the interior well casing above the water column in the well using only water from that well.

STANDARD OPERATING PROCEDURE FOR SAMPLING GROUND-WATER MONITORING WELLS

1.0 MATERIALS AND EQUIPMENT

1.1 The following items may be required for monitoring well sampling and data collection:

a. Appropriate bailer(s) for test substances.
b. Non-absorbent cord (e.g., polypropylene).
c. Pre-measured plastic bucket(s).
d. Plastic sheets.
e. m-scope
f. Tape measure (steel - tenth of a foot measurement increments) and chalk.
g. Pen knife.
h. Field forms/Field notebook.
i. Well location map.
j. Cleaning agents (detergent, distilled or deionized water, potable water).
k. Pump (if purging required) and associated materials such as:

   1. Teflon tape.
   2. Appropriate tubing (e.g., polyethylene) if using peristaltic pump.
   3. Portable generator if using submersible pump.

l. Water Well Handbook.
m. Calculator.
n. Hard hat (if required on location).
o. pH meter.
p. Conductivity meter.
q. Thermometer.
r. Paper towels, clean rags.
s. Black pen and pencil.
t. Wet ice and/or blue packs.
u. Sample jars, codes, and labels.
v. Electrical tape.
w. Pipe wrench.
x. Screwdriver, hammer.
y. Cooler(s).
z. Water jugs.
aa. Disposable gloves
bb. Well keys.
cc. Masking and packing tape.
dd. Water-proof marker.
ee. Well sampling form(s).
ff. Non-phosphate, laboratory-grade detergent.
gg. Distilled/deionized water.
hh. Chain-of-custody form(s).
ii. Custody seal(s).
jj. Extra batteries (meters, thermometer).
kk. Buffer/calibration solutions.

2.0 PROCEDURE

2.1 Once the wells are in place, and properly developed, ground-water samples will be taken for water-quality analyses. Due to temporal changes in ground-water quality, wells will be sampled at the onset of the sampling program and continued on a periodic basis through the winter and into the next season.

2.2 Make sure all equipment is decontaminated, cleaned, and calibrated before use and document daily activities in the field notebook.

2.3 Document well identification and pre-sampling information in the field notebook as needed.

2.4 Inspect the protective casing of the well and note any items of concern such as a missing lock or bent casing. Complete the Well Inspection Checklist (Figure E-4).

2.5 Place plastic sheeting around the well to protect sampling equipment from potential contamination.

2.6 Remove the well cap or plug and clean the top of the well off with a clean rag. Place the cap or plug on plastic.

2.7 Measure the depth to water using an electronic probe (m-scope) or steel tape and chalk. Document in the field notebook.

2.8 Measure the depth of the well with the steel tape. Calculate and record the volume of water in the well in the field notebook.

2.9 Prior to sampling, the well should be pumped or bailed to remove a minimum of three casing volumes (if the recharge rate is adequate to accomplish this within a reasonable amount of time) or the well should be pumped or bailed dry if the formation cannot produce enough water to sustain purging.

2.10 Record the physical appearance of the water in the field notebook (e.g., color, turbidity, odor, etc.) as it is pumped or bailed.

2.11 If the bailer has not been decontaminated, decontaminate it according to the procedures described previously. If the bailer has been decontaminated, flush it several times with distilled/deionized water, and collect and discard (in an appropriate manner) three bails of well water before collecting the sample.

2.12 Using a non-absorbent cord (e.g., polypropylene), lower the bailer into the well.

2.13 Quality-control samples will be used to monitor sampling and laboratory performance and may include replicates, and blanks, spikes.

a. Replicate analysis is done to check on laboratory reproducibility of results. The procedure to be used for taking replicate samples follows. If samples are collected for volatile organic compound (VOC) analysis, then the water

from the bailer will be distributed first to fill one VOC container and then to fill the second VOC container. Adequate water will be available to fill the bottles completely before they are capped. All water samples collected for volatile organic compound (VOC) analysis will be collected using a bailer, poured into septum-sealed VOA vials, and preserved with nitric acid.

b. Trip blank analysis is performed to detect if contamination has occurred during field handling, shipment, or in the laboratory. A trip blank is a container that is filled with distilled/deionized water in the laboratory, and travels unopened with the sample bottles. One VOA trip blank will accompany each cooler which contains VOA samples. It is opened in the laboratory and analyzed along with the field samples for the constituent of interest.

c. Equipment blank analysis provides a check on sampling procedures. An equipment blank is made with distilled/deionized water by exposing it to the sampling processes (e.g., bailer). The clean water will be poured into the bailer (which has been decontaminated and is ready for sampling) and then into the sampling container. One equipment blank will be collected for every 20 samples collected or one per sampling trip, whichever results in fewer samples.

d. A matrix spike, which is performed in the laboratory, is a check on the laboratory's ability to recover the matrix. Spikes of standard compounds may be added to samples in the laboratory to determine if the ground-water constituents are interfering with test substance identification or quantification. Such analyses may also point to systematic errors and lack of sensitivity of analytical equipment. The laboratory will analyze one matrix spike and one replicate matrix spike per every 20 samples analyzed.

2.14 Place samples in the pre-labeled containers and store on ice (we ice or blue packs).

2.15 After sample collection is complete, measure and record the temperature, conductivity, pH, and physical appearance of the water, and record in the field notebook.

2.16 Wipe the well cap with a clean rag, replace the well cap and protective cover (if present). Lock the protective cap.

2.17 Verify that each sample is placed in an individual "zip-lock" bag, wrapped with "bubble wrap," and placed in its appropriate container (holder) in the cooler, and that the cooler has sufficient ice (wet ice or blue packs) to preserve the samples for transportation to the laboratory.

2.18 Decontaminate non-disposable bailers, hoses, and pumps as discussed in the decontamination section. Wrap decontaminated equipment with a suitable material (e.g., clean plastic bag or aluminum foil). Discard the cord, rags, gloves, disposable bailers, etc. in a manner consistent with accepted procedures.

2.19 Complete the Chain-of-Custody forms. One copy of the Chain-of-Custody form is retained. Secure the cooler with sufficient packing tape and a Custody Seal. Forward the samples via overnight (express) mail or hand deliver to the designated laboratory preferably within 24 hours but no later than 48 hours after sampling.

STANDARD OPERATING PROCEDURE FOR SURFACE-WATER MEASUREMENTS AND SAMPLING

1.0 MATERIALS/EQUIPMENT

1.1 The following items may be needed for sample collection:

a. Wading rod and current meter.
b. Plastic sheeting.
c. Maps (topographic and road/county maps).
d. Meters (e.g., pH, conductivity).
e. Calibration equipment/materials.
f. Bailers.
g. Measuring tapes (100 foot, weighted).
h. Field notebook.
i. Coolers and ice (wet ice, blue packs).
j. Sample bottles.
k. Non-phosphate, laboratory-grade detergent.
l. Distilled or deionized water
m. Disposable sampling gloves

2.0 LOCATION SELECTION AND DESCRIPTION

2.1 Surface-water samples will be collected at the locations shown on Plate 9. Surface-water samples will be collected prior to stream sediment samples.

2.2 Record the location, date and time, of the selected sampling point in the field notebook.

3.0 SAMPLE COLLECTION PROCEDURE

3.1 Calculate surface-water (stream) flow rate at each of the sampling locations by determining the two variables of cross-sectional area and velocity as follows:

a. Measure the cross-sectional area directly by using a meter or yardstick, or weighted measuring tape, chain, or line. Width and depth are distance measurements (L), e.g., feet, which when multiplied yield the cross-sectional area (L^2).

b Measure the velocity using a current meter, and translate rotation into linear speed according to the manufacturers instructions. Velocity is a distance per time measurement (L/T), e.g., feet per second.

c. Multiply the cross-sectional area (L^2) by the velocity (L/T); the product of the two is the volumetric flow rate (L^3/T), which can be converted into any appropriate units, e.g., cubic feet per second, gallons per minute, etc.

3.2 Collect the appropriate samples and place the samples into pre-labeled containers.

3.3 If samples are to be included for quality control purposes to monitor sampling and/or laboratory performance (e.g., replicates, blanks and spikes) then quality control procedures will be followed.

3.4 Place all samples on ice in the cooler immediately after collection.

3.5 Verify that each sample is wrapped with "bubble wrap", and placed in its appropriate container (holder) in the cooler, and that the cooler has sufficient ice (wet ice or blue packs) to preserve the samples for transportation to the laboratory.

3.6 Decontaminate sampling equipment as discussed in the decontamination section. Wrap decontaminated equipment with a suitable material (e.g., clean plastic bag or aluminum foil). Discard any cord, rags, gloves, disposable bailers, etc. in the appropriate manner.

3.7 Complete the appropriate field forms and the Chain-of-Custody forms. One copy of the Chain-of-Custody form is retained. Secure the cooler with sufficient packing tape and a Custody Seal. Forward the samples via overnight (express) mail to the designated laboratory preferably within 24 hours but no later than 48 hours after sampling.

STANDARD OPERATING PROCEDURE FOR FIELD FILTERING WATER SAMPLES FOR METALS ANALYSES

1.0 PURPOSE

The purpose for this standard operating procedure (SOP) is to describe the considerations and procedures for the field filtration of water samples for dissolved metals analyses prior to sample preservation. Filtering is implemented when the water sample originates from a medium-grained to fine-grained porous geologic formation that contains suspended fine-grained materials (fines) that cannot be prohibited from entering the water sample by well development or well design. Filtering is also implemented for surface-water samples. Since fines are not always distinctly visible in a water sample, all water samples will undergo filtration.

It should be noted that filtration of water for metals analyses has been a standard practice with the United States Geological Survey (USGS) for many years. Within this framework, filtration refers to the filtering of water either directly or at the end of a filtration series through a 0.45 micrometer (micron) membrane filter (i.e., the presence of a large quantity of fines may require the prefiltering of the sample with a larger size[s] membrane filter[s] prior to the 0.45 micron filter to avoid clogging the 0.45 micron filter and using an exorbitant amount of time to filter).

Filtration will be done as soon as possible after a water sample is collected, preferably at the same time that the water is produced. The filtering equipment and membrane will be suitable for the intended analysis. The sampling and analysis plan (SAP) will be referred to for these and other special filtration conditions.

2.0 MATERIALS/EQUIPMENT

2.1 In order to field filter water samples, specific equipment and materials will be required. The equipment and materials needed for field filtering will include the following:

a. Non-phosphate, laboratory-grade detergent.

b. Distilled/Deionized water.

c. Laboratory-grade (HPLC) methanol.

d. Roux Associates field forms (i.e., Daily Log, Sampling, etc.)/field book.

e. Filtration apparatus (i.e., Gelman apparatus, Buchner funnel, etc.), filters, prefilters.

f. Plasticware (i.e., premeasured buckets, beakers, flasks, funnels).

g. Teflon™ tape.

h. Vacuum pump (i.e., manual or electric).

i. Appropriate tubing.

j. Disposable gloves.

k. Sample jars with appropriate preservative (e.g., nitric acid) and labels.

3.0 DECONTAMINATION

3.1 Decontamination procedures for filtering equipment follow:

a. Wear disposable gloves while cleaning filtering equipment to avoid contamination and change gloves as needed.

b. Prepare a non-phosphate, laboratory-grade detergent solution and distilled or deionized water in a bucket.

c. Remove vacuum tubing from flask.

d. Remove filter membrane from funnel.

e. Disassemble filtering apparatus (flask and funnel) and wash each piece of equipment with the non-phosphate, laboratory-grade detergent solution and distilled or deionized water.

f. Rinse flask and funnel with distilled or deionized water.

g. Rinse flask and funnel with methanol.

h. Rinse flask and funnel three times with distilled or deionized water.

i. Air dry.

j. Wrap equipment with a suitable material (i.e., clean plastic bag, aluminum foil).

4.0 PROCEDURE

4.1 Ensure that the filtering equipment is properly decontaminated before use.

4.2 Assemble the filtering apparatur (fullel and flask), and connect the vacuum pump in case it is needed to facilitate filtering (i.e., if the sample contains sufficient suspended fines to preclude gravity filtration).

4.3 Place a clean (new) 0.45-micron pore size filter in the funnel. Use larger, pore size filters if prefiltering is required (i.e., if suspended sediment is present that would quickly clog the 0.45-micron filter and prevent continuous filtration).

4.4 Obtain the water sample using an appropriate, decontaminated sample collection device (e.g., bailer, pump, jar).

4.5 Pass the unpreserved water sample through the prefilter, if needed, and the 0.45-micron filter into the flask. Apply a vacuum using the vacuum pump, if needed, to facilitate filtering.

4.6 Transfer the filtered water sample to the appropriate, pre-labeled sample container containing the preservative (e.g., nitric acid) being careful not to overfill the container and dilute the preservative. Using pH paper, check the preserved water sample to ensure that the pH is less than 2.

4.7 Follow standard operating procedures for sample documentation, shipping, and tracking (i.e., record keeping).

4.8 Decontaminate the filtering equipment that came in contact with the water sample.

STANDARD OPERATING PROCEDURE FOR STREAM-BOTTOM SEDIMENT SAMPLING

1.0 MATERIALS/EQUIPMENT

1.1 The following items may be needed for sampling:

a. "Zip-lock" plastic bags.
b. Laboratory-supplied sample containers.
c. Non-phosphate, laboratory-grade detergent.
d. Brushes.
e. Hand sledge hammer (2 pounds).
f. Steel measuring tape.
g. 30-inch long split-spoon core sampler.
h. 24-inch long "A" rod (2).
i. Disposable gloves.
j. Plastic sheeting.
k. Waders.
l. Pipe wrenches (14-inches long, 2 required).
m. Distilled/Deionized water.
n. Stainless-steel spoons, knives, or spatulas.
o. Coolers.
p. Ice (wet ice and/or blue packs).
q. Field notebook.
r. Chain-of-Custody forms and Custody Seals.

2.0 PROCEDURE

2.1 Identify the sampling station location and document it in the field notebook.

2.2 Sampling is to begin at the furthest downstream station and proceed upstream. Stream sediment samples will be collected upstream of the sampler's location.

2.3 Measure the width of the stream by stretching a steel measuring tape across the stream. Record the stream width in the field notebook.

2.4 The sampling equipment is thoroughly cleaned prior to use in accordance with the standard decontamination procedures.

2.5 Samples are collected by driving (via the sledge hammer) the split-spoon core barrel 1.5 feet into the stream bottom at the locations shown in Plate 2. For each sample collected, record the depth of the water in the field notebook.

2.6 Extract the split-spoon core barrel from the stream bed and place it on a clean plastic sheet on the bank to prevent contamination. Loosen the end caps and open core barrel. Screen the sediment sample for volatile organic compounds with a FID (such as a Century OVA System). Describe the sample in detail. Deposit the contents into the appropriate laboratory sample containers. Use a stainless-steel spoon, a knife, or spatula to scrape the remaining contents out of the core barrel. New, disposable gloves are worn while handling sampling

equipment and containers.

2.7 Label the sample container with the appropriate information, such as the station number, distance in feet from the left bank (looking upstream), time and date, and initials of field scientist collecting the samples. Place each sample container in a cooler with ice.

2.8 After each sample, decontaminate the sampling equipment according to the procedures. After the final sample collection and decontamination wrap the sampling equipment in an appropriate clean material (e.g., aluminum foil).

2.9 Each sample is visually inspected and logged in detail in the field notebook.

2.10 Make sure that there is enough ice for transportation of the samples to the laboratory and arrange for overnight shipment. Enclose a completed Chain-of-Custody form for all the samples collected. One copy of the Chain-of-Custody form is retained. Secure each cooler with a Custody Seal.

STANDARD OPERATING PROCEDURE FOR QUALITY CONTROL

1.0 RESPONSIBILITY

1.1 The project hydrogeologist will verify the integrity of the well and ensure that all wells are constructed to specification, are adequately developed, and sampled using the appropriate equipment to properly collect the samples needed to meet study objectives. The project hydrogeologist will verify that all sampling, equipment is properly decontaminated according to the standard procedures, that all samples are properly handled and packaged to avoid possible cross contamination or breakage and that the standard shipping procedures (i.e., Chain-of-Custody forms, Custody Seals, etc.) and deadlines are met.

1.2 All field work will be done by or under the direct supervision of an experienced project hydrogeologist from Roux Associates, Inc. The project manager or project hydrogeologist, and Quality Assurance Unit (QAU) officer will be present for critical phases of the study, inspection of site activities, procedural review, and communication with field hydrogeologist and client personnel.

2.0 QUALITY CONTROL SAMPLES

2.1 Samples taken for analysis of compounds may require the use of quality control samples to monitor sampling activities and laboratory performance. Types of quality control samples may include replicate and/or replicate split, trip blank, field (equipment) blank, and matrix spike. A discussion pertaining to each quality control sample follows:

1. Replicate and Replicate Split - Replicate sample analysis is done to check on the reproducibility of results either within a laboratory or between laboratories. A replicate sample is called a split sample when it is collected with or turned over to a second party (e.g., regulatory agency, consulting firm) for an independent analysis. Replicate samples are aliquots from a sample in a common container.

   If samples are collected for volatile organic compound (VOC) analysis, then the water from the bailer or pump will be distributed first to fill one VOC container and then to fill the second VOC container. Adequate water should be available to fill the bottles completely before they are capped. If the water is insufficient to fill all the bottles at once, then incrementally with water from two or more bailer volumes or pump cycles.

   For other test substances, water should be accumulated in a common container and then decanted slowly into the sample bottles. In the case of wells that recover slowly and produce insufficient water to fill all the replicate sample containers, the containers should be filled incrementally and kept on ice in the cooler in between filling periods.

2. Trip Blank - A trip blank sample is a sample bottle that is filled with "clean" (e.g., distilled/deionized) water in the laboratory, and travels unopened with the sample bottles. It is opened in the laboratory and

analyzed along with the field samples for the constituent(s) of interest (e.g., test substance, etc.). Analysis of trip blanks is performed to detect if contamination has occurred during field handling, shipment, or in the laboratory. One trip blank would accompany each day's samples.

3. Equipment and field Blanks - An equipment blank sample is collected to check on the sampling procedures implemented in the field. An equipment blank is made with "clean" (e.g., distilled/deionized) water by exposing it to sampling processes (i.e., the clean water must pass through the actual sampling equipment) For example, if samples are being collected with a bailer, the equipment blank would be made by pouring the clean water into a bailer which has been decontaminated and is ready for sampling, and then pouring from the bailer into the sample containers. If a metals equipment blank is to be made, the sample must be filtered. One equipment blank would be incorporated into the sampling program for each day's collection of samples and analyzed for the identical suite of constituents as the sample.

   The location(s) for preparation of field blank(s) will be specified in the sampling plan. Often an equipment blank is made just before sampling the last well to check for accumulated cross contamination. However, it may also be made before sampling a background well or between sampling events during the day. A field blank might be made at a location where ambient air quality is poor, to check for atmospheric interference.

2. Matrix Spike - Spikes of compounds may be added to samples in the laboratory to determine if the ground-water matrix is interfering with constituent identification or quantification. Such analyses may also point to systematic errors and lack of sensitivity of analytical equipment. That is, a matrix spike, which is performed in the laboratory, provides a check of the laboratory's ability to recover the matrix.

STANDARD OPERATING PROCEDURES FOR MEASURING DISSOLVED OXYGEN IN WATER

1.0 CALIBRATION

Follow manufacturer's calibration procedure exactly to obtain guaranteed precision and accuracy. Calibrate membrane electrodes by reading against air and a sample with zero dissolved oxygen (DO). (Add excess sodium sulfite, Na_2SO_3, and a trace of cobalt chloride, $CoCl_2$, to bring DO to a zero.) Preferably calibrate with samples of water under test.

2.0 PROCEDURE

Follow all precautions recommended by manufacturer to insure acceptable results. Take care in changing membrane to avoid contamination of sensing element and also trapping of minute air bubbles under the membrane, which can lead to lowered response and high residual current. Provide sufficient sample flow across membrane surface to overcome erratic response. Dissolved oxygen will be measured in situ where possible (i.e., surface water). All sampling methods used will be recorded. The probe will be decontaminated with distilled water between samples.

2.1 Validation of temperature effect:
Check frequency one or two points to verify temperature correction data as recommended in manufacturer's instructions.

STANDARD OPERATING PROCEDURE FOR MEASUREMENT OF Eh OF WATER SAMPLES

1.0 PROCEDURE

1.1 Follow all manufacturer's instructions on procedures for filling the electrode and correcting it to the meter.

1.2 Connect the electrode to the meter, set the function switch to the millivolt mode, and place the electrode in the sample solution, being certain to keep the filling solution level in the electrode at least one inch above the level of the sample solution.

1.3 When the reading stabilizes, record the potential in the field notebook.

APPENDIX A

Technical Memoranda on Field Activities

Section 2. Field Change Forms

FIELD CHANGE DOCUMENTATION

PDI (Project Number 16101Y)

DATE: 3-5-90 FIELD CHANGE #: 1

PERSON REQUESTING CHANGE: Brian Thomas

COMPANY/TITLE: Roux Associates, Inc./Project Hydrogeologist

FIELD CHANGE: Relocation of OW-23 from proposed location, south to the Boston Edison easement property.

REASON FOR FIELD CHANGE: The location specified in the Work Plan is inaccessible. As yet, permission has not been granted for property access.

ACKNOWLEDGEMENT

ISRT:

NUS/USEPA/MDEP:

WORK PLAN ADDENDUM REQUIRED (Y/N): No

ADDENDUM SUBMITTED TO ISRT (Y/N): No

ADDENDUM SUBMITTED TO NUS/USEPA/MDEP (Y/N): No

FIELD CHANGE DOCUMENTATION

PDI (Project Number 16101Y)

DATE: 4-30-90 FIELD CHANGE #: 2

PERSON REQUESTING CHANGE: Brian Thomas

COMPANY/TITLE: Roux Associates, Inc./Project Hydrogeologist

FIELD CHANGE: Relocation of OW-23 from the proposed location to Commerce Way and Commonwealth Avenue (east of the present location).

REASON FOR FIELD CHANGE: The proposed location of OW-23 was drilled and no water was encountered in the unconsolidated deposits. It is proposed that the well be relocated to the area south of Marshalls (corner of Commerce Way and Commonwealth Avenue).

ACKNOWLEDGEMENT

ISRT:

NUS/USEPA/MDEP:

WORK PLAN ADDENDUM REQUIRED (Y/N): No

ADDENDUM SUBMITTED TO ISRT (Y/N): No

ADDENDUM SUBMITTED TO NUS/USEPA/MDEP (Y/N): No

FIELD CHANGE DOCUMENTATION

PDI (Project Number 16101Y)

DATE: 4-30-90 FIELD CHANGE #: 3

PERSON REQUESTING CHANGE: Brian Thomas

COMPANY/TITLE: Roux Associates, Inc./Project Hydrogeologist

FIELD CHANGE: Relocation of the following soil borings (Subtask 1) of Plume Delineation Task (GW-1) to City of Woburn right of ways.

ATB-3,4,5,6,7,8,9,10,11,12,13,14,15, and ATB-16.

REASON FOR FIELD CHANGE: Original locations are not accessible (located on private property and permission for access has not been granted).

ACKNOWLEDGEMENT

ISRT:

NUS/USEPA/MDEP:

WORK PLAN ADDENDUM REQUIRED (Y/N): No

ADDENDUM SUBMITTED TO ISRT (Y/N): No

ADDENDUM SUBMITTED TO NUS/USEPA/MDEP (Y/N): No

FIELD CHANGE DOCUMENTATION

GSIP (Project Number 06609Y)

DATE: 3-1-90 FIELD CHANGE #: 1

PERSON REQUESTING CHANGE: Joanne Yeary

COMPANY/TITLE: Roux Associates, Inc./Project Hydrogeologist

FIELD CHANGE: A 2-inch diameter monitoring well instead of a 4-inch well as specified in the Work Plan was installed at OW-22.

REASON FOR FIELD CHANGE: After coring through a large boulder, (using a 3-inch diameter coring bit), the augers were not able to ream the borehole to a sufficient diameter to permit a 4-inch diameter well to be installed.

ACKNOWLEDGEMENT

ISRT:

NUS/USEPA/MDEP:

WORK PLAN ADDENDUM REQUIRED (Y/N): No

ADDENDUM SUBMITTED TO ISRT (Y/N): No

ADDENDUM SUBMITTED TO NUS/USEPA/MDEP (Y/N): No

FIELD CHANGE DOCUMENTATION

GSIP (Project Number 06609Y)

DATE: 3-7-90 FIELD CHANGE #: 2

PERSON REQUESTING CHANGE: Joanne Yeary

COMPANY/TITLE: Roux Associates, Inc./Project Hydrogeologist

FIELD CHANGE: Split-spoon samples were not collected during the drilling of PZ-2.

REASON FOR FIELD CHANGE: Drilled and installed PZ-2 without the collection of split-spoon soil samples to reduce the time that the borehole was venting to the atmosphere. Odors emitted during drilling of PZ-1, which is located 20 feet east of PZ-2, required upgrading to Level C Health and Safety Protection.

ACKNOWLEDGEMENT

ISRT:

NUS/USEPA/MDEP:

WORK PLAN ADDENDUM REQUIRED (Y/N): No

ADDENDUM SUBMITTED TO ISRT (Y/N): No

ADDENDUM SUBMITTED TO NUS/USEPA/MDEP (Y/N): No

FIELD CHANGE DOCUMENTATION

GSIP (Project Number 06609Y)

DATE: 3-24-90 through 3-26-90 FIELD CHANGE #: 3

PERSON REQUESTING CHANGE: Joanne Yeary

COMPANY/TITLE: Roux Associates, Inc./Project Hydrogeologist

FIELD CHANGE: Sewer sediment samples were not collected from the four sewer sampling locations.

REASON FOR FIELD CHANGE: There was no sediment within the sewer lines at any of the four sampling locations.

ACKNOWLEDGEMENT

ISRT:

NUS/USEPA/MDEP:

WORK PLAN ADDENDUM REQUIRED (Y/N): No

ADDENDUM SUBMITTED TO ISRT (Y/N): No

ADDENDUM SUBMITTED TO NUS/USEPA/MDEP (Y/N): No

FIELD CHANGE DOCUMENTATION

GSIP (Project Number 06609Y)

DATE: 2-28-90, 3-7-90 and 3-12-90 FIELD CHANGE #: 4

PERSON REQUESTING CHANGE: Joanne Yeary

COMPANY/TITLE: Roux Associates, Inc./Project Hydrogeologist

FIELD CHANGE: Soil samples taken for laboratory analysis were not collected specifically at a depth of 5 feet as stated in the Work Plan. Soil samples were collected at 0 ft - 2 ft. and 2 ft. - 8 ft. for OW-21, 0 - 7 ft. and 7 - 9 ft. at OW-28, and 4 ft. - 6 ft. and 6 ft. - 7.2 ft. at OW-22.

REASON FOR FIELD CHANGE: Sampling depths varied based upon the depth to water at each sampling location. As specified in the Work Plan, the first sample was to be collected from the unsaturated zone, and the second sample from the saturated zone. In addition, more than one split-spoon sample was used, when necessary, to obtain adequate sample volume for laboratory analysis.

ACKNOWLEDGEMENT

ISRT:

NUS/USEPA/MDEP:

WORK PLAN ADDENDUM REQUIRED (Y/N): No

ADDENDUM SUBMITTED TO ISRT (Y/N): No

ADDENDUM SUBMITTED TO NUS/USEPA/MDEP (Y/N): No

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 1. Geologic Logs and Split Spoon Sample Chain of Custody Forms
- Part 1. Geologic Logs
- Part 2. Split Spoon Sample Chain of Custody Forms

Section 2. Well Construction Logs

Section 3. PDI Task GW-1 - Aquifer Thickness Boring and Monitoring Well Geologic Logs

Section 4. Bedrock Core Photographs

Section 5. Ground-Water Sampling Logs and Chain of Custody Forms
- Part 1. Ground-Water Sampling Logs (March 1990, April 1990, and August 1990)
- Part 2. Ground-Water Sampling Chain of Custody Forms

Section 6. Surface-Water High Flow Sampling Logs and Chain of Custody Forms
- Part 1. Surface-Water High Flow Sampling Logs
- Part 2. Surface-Water High Flow Sampling Chain of Custody Forms

Section 7. Surface-Water Low Flow Sampling Logs and Chain of Custody Forms
- Part 1. Surface-Water Low Flow Sampling Logs
- Part 2. Surface-Water Low Flow Sampling Chain of Custody Forms

Section 8. Sewer-Water Sampling Logs and Chain of Custody Forms
- Part 1. Sewer-Water Sampling Logs
- Part 2. Sewer-Water Sampling Chain of Custody Forms

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 1. Geologic Logs and Split Spoon Sample Chain of Custodies

Part 1. Geologic Logs

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	06609Y
Date	3/14/90
Project	ISRT - GSIP
Client	Industri-Plex Remedial Trust
Page	1 of 6
Logged By	Martha Smith
Well No.	OW-21
Loc.	Woburn, MA
M.P. Elevation	76.28'
Drilling Started	3/12/90
Ended	3/14/90
Driller	D.L. Maher
Type Of Rig	ATM auger-core

WELL DATA

Hole Diam. (in.)	12"
Final Depth (ft.)	15
Casing Diam. (in.)	4"
Casing Length (ft.)	1.5
Screen Setting (ft.)	5-15
Screen Slot & Type	.01 PVC
Well Status	Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.
4/10/90	4.86	71.42'
8/13/90	5.01	71.27'
12/7/90	4.93	71.35'

SAMPLER

Type	Splitspoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

300 gallons pumped on 3/16/90
water-clear condition

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1.3	0-2	3,20,19,13			0-0.5': SOIL, dark brown; organic, firm, moist .5-1.5': SAND, gravel, clay mix (fill) brown; compact; moist
					1	
						1.5-2.0': SAND, orange-brown, medium grain size; loose, moist.
					2	2.0-2.5': SAND (70%), gravel; orange-gray; loose; wet
	1.3	2-4	14,15,20,20			2.5-4.0': SAND; orange-gray; loose; wet.
					3	
	2.0	4-6	2,9,14,17		4	4.0-4.6': SAND, tan-gray; medium to coarse grain size 4.6-4.7': SAND, organics mixed in; medium to coarse grain size; firm;wet
					5	4.7-6.0': SAND; tan-gray; medium to coarse grain size; loose; wet.
	2.0	6-8	8,10,12,15		6	6.0-7.0': SAND; tan-gray; medium grain size, wet
					7	7.0-7.5': SAND, tan with orange cast (Fe stained); medium grain size;wet
						7.5-8.0': SAND; tan-gray, medium grain size

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 06609Y Date 3/14/90
Project ISRT- GSIP
Client IndustriPlex Remedial Trust
Page 2 of 6
Logged By Martha Smith
Well No. OW-21
Loc. Woburn, MA
M.P. Elevation 76.28
Drilling Started 3/12/90 Ended 3/14/90
Driller D.L. Maher
Type Of Rig ATM auger-core

WELL DATA

Hole Diam. (in.) 12
Final Depth (ft.) 15
Casing Diam. (in.) 4"
Casing Length (ft.) 7.5
Screen Setting (ft.) 5-15
Screen Slot & Type .01 PVC
Well Status Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
4/10/90	4.86	71.42
8/13/90	5.01	71.27
12/7/90	4.93	71.35'

SAMPLER

Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

300 gallons pumped on 3/16/90
water-clear condition

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	2.0	8-10	10,9,22,18		8 9	8.0-10.0': SAND; tan; medium grain size; loose; wet
	1.2	10-12	4,10,12,19		10 11	10.-12.': SAND; gray-tan, trace of Fe staining; medium grain size; loose wet.
	1.7	12-14	8,15,21,26		12 13	12.-13.2': SAND; tan; medium grain size; loose. 13.2-14.': SAND; tan; slight Fe stain; medium to fine grain size
	2.0	14-16	12,14,19,30		14 15	14.-15.': SAND, tan; slight Fe stain medium to fine grain size 15.-15.4':Sand, with trace of gravel tan; slight Fe Stain;medium to fine grain size. 15.4-15.5';Silt, brown, firm 15.5-16.';Sand and silt in thin(.002') layers;gray-green-tan color, with Fe staining in some layers

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 06609Y Date 3/14/90
Project ISRT - GSIP
Client IndustriPlex Remedial Trust
Page 3 Of 6
Logged By Martha Smith
Well No. OW-21
Loc. Woburn, MA
M.P. Elevation 76.28
Drilling Started 3/12/90 Ended 3/14/90
Driller D.L. Maher
Type Of Rig ATM auger-core

WELL DATA

Hole Diam. (in.) 12"
Final Depth (ft.) 15
Casing Diam. (in.) 4"
Casing Length (ft.) 7.5
Screen Setting (ft.) 5-15
Screen Slot & Type .01 PVC
Well Status Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.
4/10/90	4.86	71.42
8/13/90	5.01	71.27
12/7/90	4.93	71.35'

SAMPLER

Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

300 gallons pumped on 3/16/90
water conditions- clear

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1.3	16-18	5,9,9,9		16	16.0-16.8':Sand and silt in thin layers as above; gray. 16.8-16.9': Sand, with silty laminations;orange;fine grain size 16.9-18.0': SAND with silty laminations; gray; fine grain size.
					17	
	1.4	18-20	7,6,7,8		18	18.-19.5': SAND; silty; gray; fine grain size; soft.
					19	19.5-20.': SAND, as above, but with tiny brown flecks of possible organic material.
	1.4	20-22	6,5,6,10		20	20.-21.6': SAND, silty; gray; with tiny brown flecks; fine grain size.
					21	21.6-22.': SAND, silty; gray with orange (Fe) stain, fine grain size.
	1.7	22-24	11,9,8,12		22	22-23.5': SILT, sandy, gray with gray brown flecks; soft
					23	23.5-24': SILT and clay laminations, with sand, gray; firm

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 06609Y Date 3/14/90
Project ISRT - GSIP
Client IndustriPlex Remedial Trust
Page 4 of 6
Logged By Martha Smith
Well No. OW-21
Loc. Woburn, MA
M.P. Elevation 76.28
Drilling Started 3/12/90 Ended 3/14/90
Driller D.L. Maher
Type Of Rig ATM auger-core

WELL DATA

Hole Diam. (in.) 12"
Final Depth (ft.) 15
Casing Diam. (in.) 4"
Casing Length (ft.) 7.5
Screen Setting (ft.) 5-15
Screen Slot & Type .01 PVC
Well Status Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
4/10/90	4.86	71.42
8/13/90	5.01	71.27
12/7/90	4.93	71.35'

SAMPLER

Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

300 gallons pumped on 3/16/90
water conditions -clear

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	.6	24-25.5	60,60,60 refusal		24	24.-25.5': (50%), gravel (40%),sand (10%) tan sediments, dark colored gravel. Stone in tip of splitspoon prevented recovery of sample.
					25	
	.5	25.5-30	core			25.5-30': cobbles-boulder, sand.
					26	
					27	
					28	
					29	
	.5	30-32	16,15,30,70		30	30-32': Gravel (60%), sand; grey-tan coarse grain size sand angular material, loose.
					31	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	06609Y
Date	3/14/90
Project	ISRT - GSIP
Client	IndustriPlex Site Remedial Trust
Page	5 Of 6
Logged By	Martha Smith
Well No.	OW-21
Loc.	Woburn, MA
M.P. Elevation	76.28
Drilling Started	3/12/90
Ended	3/14/90
Driller	D.L. Maher
Type Of Rig	ATM auger-core

WELL DATA

Hole Diam. (in.)	12"
Final Depth (ft.)	15
Casing Diam. (in.)	4"
Casing Length (ft.)	7.5
Screen Setting (ft.)	5-15
Screen Slot & Type	.01PVC
Well Status	Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
4/10/90	4.86	71.42
8/13/90	5.01	71.27
12/7/90	4.93	71.35'

SAMPLER

Type	Splitspoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

300 gallons pumped on 3/16/90
water clear condition

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	.8	32-34	33,69,100, 131		32	32-33.7': Gravel(75%) with Sand; gray-tan.
					33	33.7-34.': Sand Gravel mix; gark gray compact, very hard;cindery texture.
	.8	34-36	60,97,47,34		34	34-36': Gravel (75%) Clay (15%) Sand (10%), dark gray with Fe staining, hard.
					35	
	.7	36-36.7	44-55/3"-refusal		36	36-36.7': Gravel, broken up,dark gray
	2.0	36.7-42.5	core		37	36.7-42.5':Rock- broken into gravel size chunks. (very fine grained meta gabbro-basalt)
					38	
					39	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	06609Y
Date	3/14/90
Project	ISRT - GSIP
Client	IndustriPlex Remedial Trust
Page	6 of 6
Logged By	Martha Smith
Well No.	OW-21
Loc.	Woburn, MA
M.P. Elevation	76.28
Drilling Started	3/12/90
Ended	3/14/90
Driller	D.L. Maher
Type Of Rig	ATM auger-core

WELL DATA

Hole Diam. (in.)	12"
Final Depth (ft.)	15
Casing Diam. (in.)	4"
Casing Length (ft.)	7.5
Screen Setting (ft.)	5-15
Screen Slot & Type	.01PVC
Well Status	Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
4/10/90	4.86	71.42
8/13/90	5.01	71.27
12/7/90	4.93	71.35'

SAMPLER

Type	Splitspoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

300 gallons pumped on 3/16/90
Water clear condition

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
					40	
					41	
					42	
	5.0	42.5-47.5	core		43	42.5-47.5':Bedrock with vertical and horizontal fractures. Water at 47' (under some pressure)
					44	
					45	
					46	
					47	47.5.'- end of coring, bottom of hole

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	06609Y
Date	3/2/90
Project	ISRT - GSIP
Client	IndustriPlex Remedial Trust
Page	1 of 2
Logged By	Martha Smith
Well No.	OW-22
Loc.	Woburn, MA
M.P. Elevation	81.76
Drilling Started	2/28/90
Ended	3/2/90
Driller	D.L. Maher
Type Of Rig	auger-core ATM

WELL DATA

Hole Diam. (in.)	12"
Final Depth (ft.)	13.3
Casing Diam. (in.)	2"
Casing Length (ft.)	6.4
Screen Setting (ft.)	3.3-13.3
Screen Slot & Type	.01 PVC
Well Status	Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.
4/10/90	7.98	73.78
8/13/90	9.23	72.53
12/7/90	8.97	72.79

SAMPLER

Type	Splitspoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

3/9/90
200 gallons pumped (surged simutaneously) water turbid at first.final water slightly cloudy

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1.0	0-2	7,12,6,8		1	0-1.6': SOIL; brown; organic; soft slightly moist.
						1.6-2.0': organic(piece of wood)
	2.0	2-4	6,7,8,7,		2	2-2.8': SOIL, silty, dark brown, almost black, slightly moist.
					3	2.8-3.4': SAND; tan, medium to fine grain size, slightly moist.
						3.4-4.': SAND; dark brown; medium to fine grain size.
	2.0	4-6	5,5,4,6		4	4.-5.1': SAND; reddish brown; medium grain size; loose, moist.
					5	5.1-6.': SAND; tan; medium grain size, loose; WATER at 5.5'
		6-7.2	20,40,80/4 Refusal @ 7.2'		6	6-6.8': SAND, tan-brown; medium grain size; loose; wet.
					7	6.8-7.2': gravel/fractured rock; broken up, trace of sand
						7.2-8.5': Boulder, dark gray, fine fine grained rock

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 06609Y Date 3/2/90
Project ISRT - GSIP
Client IndustriPlex Remedial Trust
Page 2 Of 2
Logged By Martha Smith
Well No. OW-22
Loc. Woburn, MA
M.P. Elevation 81.76
Drilling Started 2/28/90 Ended 3/2/90
Driller D.L. Maher
Type Of Rig auger-core ATM

WELL DATA

Hole Diam. (in.) 12"
Final Depth (ft.) 13.3
Casing Diam. (in.) 2"
Casing Length (ft.) 6.4
Screen Setting (ft.) 3.3-13.3
Screen Slot & Type .01 PVC
Well Status Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
4/10/90	7.98	73.78
8/13/90	9.23	72.53
12/7/90	8.97	72.79

SAMPLER

Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

3/9/90
200 gallons pumped (surged simutaneously) water turbid at first, final water slightly cloudy.

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
		8.5-9	100/6" refusal @ 9.0'		8	8.5-9': rock, fractured
					9	9-11': Gravel/rock, fractured (auger through rock since splitspoon won't sample gravel)
					10	
	0.5	11-13	20,36,50		11	11-13': Till, gray, gravel, sand mix medium grain size sand; compact hard.
					12	
	1.2	13-14.8			13	13-13.5': Till, gray, gravel, sand mix;compact, hard 13.5-14': Gravel, black, fractured rock.
					14	14-14.4':Till, clay,sand,gravel mix 14.4-14.8':Till, gravel, clay mix.
		14.8-19.8	core		15	14.8-19.5':Bedrock-metamorphic-gneiss- with calcite veins, vertical fractures down length of core. Fractured also at 17.8'

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	06609Y
Date	3/9/90
Project	ISRT - GSIP
Client	IndustriPlex Remedial Trust
Page	1 Of 2
Logged By	Martha Smith
Well No.	OW-28
Loc.	Woburn, MA
M.P. Elevation	77.20
Drilling Started	3/7/90
Ended	3/9/90
Driller	D.L Maher
Type Of Rig	ATM auger-core/air rotary

WELL DATA

Hole Diam. (in.)	8 3/4"
Final Depth (ft.)	8.8
Casing Diam. (in.)	4"
Casing Length (ft.)	6.5
Screen Setting (ft.)	3.8-8.8
Screen Slot & Type	.01 PVC
Well Status	Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
4/10/90	7.23	69.97
8/13/90	9.25	67.95

SAMPLER

Type	Splitspoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

1 gallon till dry 3/9/90

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	.5	0-1.3	8,35,9/3" refusal		1	0-1.3': GRAVEL (60%), with sand, brown coarse grain size sand, compact hard, slightly moist.
	.5	2-4	14,17,19,34		2, 3	2-2.5': SAND (70%) with gravel, light brown, coarse to medium grain size, dry. (stone in tip of split-spoon prevented sample recovery from 2.4-4.0')
	.4	4-6	12,7,8,15		4, 5	4.0-4.5': SAND (95%) with gravel; brown; coarse to medium grain size. soft, moist (poor sample recovery due to stones ahead of splitspoon)
	1.0	6-8	14,23,24,54		6, 7	6-8': SAND (50%) and gravel mix; brown-gray, coarse grain size, sand, compact; moist to wet. WATER @ 7'.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	06609Y
Date	3/9/90
Project	ISRT - GSIP
Client	IndustriPlex Remdial Trust
Page	2 Of 2
Logged By	Martha Smith
Well No.	OW-28
Loc.	Woburn, MA
M.P. Elevation	77.20
Drilling Started	3/7/90
Ended	3/9/90
Driller	D.L. Maher
Type Of Rig	ATM auger-core/air rotary

WELL DATA

Hole Diam. (in.)	8 3/4"
Final Depth (ft.)	8.8
Casing Diam. (in.)	4"
Casing Length (ft.)	6.5
Screen Setting (ft.)	3.8-8.8
Screen Slot & Type	.01 PVC
Well Status	Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
4/10/90	7.23	69.97
8/13/90	9.25	67.95

SAMPLER

Type	Splitspoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1.0	8-9	34-100		8	8-9': Gravel, sand, clay mix; gray angular bits of material, loose, saturadted.
		9-14	core		9	9-14': Bedrock- metadiorite dark with chlorite rich bands.
					10	
					11	
					12	
					13	
					14	14': End of core, bottom of hole.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES

GEOLOGIC LOG

Study No. 06609Y Date 3/6/90
Project ISRT - GSIP
Client IndustriPlex Remedial Trust
Page 1 Of 2
Logged By M. Smith / B. Thomas
Well No. PZ-1
Loc. Woburn, MA
M.P. Elevation 68.38
Drilling Started 3/6/90 Ended 3/6/90
Driller D.L. Maher
Type Of Rig ATM auger-core

WELL DATA

Hole Diam. (in.) 8 1/4"
Final Depth (ft.) 14
Casing Diam. (in.) 2"
Casing Length (ft.) 6.3
Screen Setting (ft.) 4-14
Screen Slot & Type 01,schd..40 PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type Splitspoon
Hammer 130 lb.
Fall 30 in.

DEVELOPMENT

15 gallons pumped and surged. 3/16/90 well pumped dry three times (allowed to recover and then pumped)

Elev. (1)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
		1.2	0-2	19,23,44,41			0-1.0': Sand-gravel mix; gray brown; dry; loose.
						1	1.0-2.0': Clay with trace gravel; gray-green-brown color; hard; slightly moist.
		1.5	2-4	46,83,105 39		2	2.0-3.0': Clay with trace of gravel (as above)
						3	3.0-3.5':gravel, gray
							3.5-4.0': Clay and ash like material black, fine grain size
		2.0	4-6	12,12,12,19		4	4.0-6.0': PEAT, organic material, roots; gray-black; moist; strong H_2S odor
						5	
		1.4	6-8	6,10,15,20		6	6.0-8.0': HIDES; black; wet; strong odor.
						7	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES

GEOLOGIC LOG

Study No.	06609Y
Date	3/6/90
Project	ISRT - GSIP
Client	IndustriPlex Remedial Trust
Page	2 Of 2
Logged By	M. Smith / B. Thomas
Well No.	PZ-1
Loc.	Woburn, MA
M.P. Elevation	68.38
Drilling Started	3/6/90
Ended	3/6/90
Driller	D.L. Maher
Type Of Rig	ATM auger-core

WELL DATA

Hole Diam. (in.)	8 1/4"
Final Depth (ft.)	14
Casing Diam. (in.)	2"
Casing Length (ft.)	6.3
Screen Setting (ft.)	4-14
Screen Slot & Type	.01 schd. 40 PVC
Well Status	

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type	Splitspoon
Hammer	130 lb.
Fall	30 in.

DEVELOPMENT

15 gallons pumped and surged. 3/16/90 well pumped dry three times (allowed to recover and then pumped)

Elev. (1)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
		1.6	8-10	6,10,15,20		8	8.0-8.7': animal HIDES, black
						9	8.7-10.': Sand, gravel, trace of silt; black, coarse grain sixe sand; wet.
		0.5	10-12	4,11,11,22		10	10.0-12.0': Gravel (fine) with Sand (coarse grain size); black.
						11	
		1.3	12-14	6,8,10,10		12	12.0-12.2': Sand, silty; black, fine grain size.
						13	12.2-14.0': Sand(70%) with silt and trace clay; gray; fine grain size with some laminations; coarsens downwards.
						14	Bottom of hole 14'

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES

GEOLOGIC LOG

Study No. 06609Y Date 3/7/90
Project ISRT - GSIP
Client IndustriPlex Remedial Trust
Page 1 Of 1
Logged By M. Smith
Well No. PZ-2
Loc. Woburn, MA
M.P. Elevation 68.95
Drilling Started 3/7/90 Ended 3/7/90
Driller D.L. Maher
Type Of Rig ATM auger-core

WELL DATA

Hole Diam. (in.) 8 1/4"
Final Depth (ft.) 14
Casing Diam. (in.) 2"
Casing Length (ft.) 6.8
Screen Setting (ft.) 4-14
Screen Slot & Type. 01 schd 40 PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Not Applicable
Hammer Not Applicable lbs.
Fall Not Applicable in.

DEVELOPMENT

3/16/90
55 gallons pumped and surged. Water black and turbid, clears to slightly cloudy.

Elev. (1)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
							0-1.5': Sand/gravel mix, gray brown
						1	
							1.5-2.5': Sand, silty gray to dark gray color. Water at 2.5'.
						2	
							2.5-14': Sand medium grain size, black to dark gray; odor of hides.
						3	
						4	
						5	
						6	
						7	
						8	
						9	
						10	
						11	
						12	
						13	Bottom of hole 14'
						14	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 1. Geologic Logs and Split Spoon Sample Chain of Custody Forms
Part 2. Split Spoon Sample Chain of Custody Forms

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Yeary, Joanne Mann

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	pH, total carbonate in glass 250 ml jar; Chilled	iron oxide, manganese oxide in glass 250 ml jar; Chilled	TOC in 125 ml glass jar; Chilled	Grain size analysis in 250 ml glass jar.			TOTAL BOTTLES	NOTES
SS-22, 4'-6'	2-28-90	1500	1	1	1	1			4	
SS-22, 6'-7.2'	2-28-90	1525	1	1	1				3	- not enough sample to fill bottle for grain size analysis.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Peter J Baryah	ROUX	3/1/90	9:10 am	Joseph [illegible]	ENCO	3-1-90	09:10
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered.
Comments:

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CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Page 1 of 1

Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Yeary, M. Smith, M. Smith

Sample Designation/Location	Date Collected	Time Collected	pH, temperature in glass 250 ml jar. Chilled.	Total chromium, Cr+3, Cr+6 in glass 250 ml jar, Chilled	TOC in 125 ml glass jar, Chilled	Grain size analysis in 250 ml glass jar			TOTAL BOTTLES	NOTES
SS-28, 0-7'	3-7-90	1550	1	1	1	1			4	
SS-28, 7'-9'	3-7-90	1625	1	1	1	1			4	
									8	TOTAL

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Peter J Bargak	ROUX	3/8/90	0820	[illegible]		3-8-90	730
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method

Comments

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SUITE 256
HUNTINGTON, NEW YORK 11743

ANALYSES

Page 1

Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yerry, M. Smith, M. Smith

Sample Designation/Location	Date Collected	Time Collected	pH, total carbonate in glass 250 ml jar. Chilled	Iron, nitrate, manganese, sulfate, total chromium in 1L glass 250 ml jar. Chilled	TOC in 125 ml glass jar, Chilled	Grain Size analysis in 250 ml glass jar.			TOTAL BOTTLES	NOTES
SS 21, 0'-2'	3-12-90	1320	1	1	1	1			4	
SS21, 2-8'	3-12-90	1400	1	1	1	1			4	
SD-21	3-12-90	1350	1	1	1	1			4	
										12 Total Bottles

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	3/13/90	8:15	[signature]	ERCO	3/13/90	8:15
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand Delivered

Comments: Chilled

9003034

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CHAIN OF CUSTODY

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Page of

Project Name: ISRT - GSIP

Project Number: 066094

Project Location: Woburn, MA

Sampler(s): Joanne Yeary

Sample Designation/Location	Date Collected	Time Collected	Total As, As+3, As+5, Total Hg, Hg°, Hg+2, Total Pb, Pb+2; 250 ml glass jar						TOTAL BOTTLES	NOTES
SS-22; 4-6'	2-28-90	1500	1							
SS-22; 6-7.2'	2-28-90	1525	1							

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Joanne Yeary	Roux	3-1-90	1610	[illegible]	Radian	3-2-90	0900
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Federal Express Overnight

Comments: rec 2°C

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Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT-GSIP

Project Number: 066094

Project Location: Woburn, MA

Sampler(s): J. Yang Jeanne Yang M. Smith M Smith

Sample Designation/Location	Date Collected	Time Collected	Total As, As+3, As+5, Total Na, Total Hg, Hg+2, Pb+2, Ag+2 in 1000 ml glass jar						TOTAL BOTTLES	NOTES
SS-28, 0-7'	3-7-90	1550	1						1	
SS-28, 7'-9'	3-7-90	1625	1						1	
									2	TOTAL BOTTLES

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Jeanne Yang	ROUX	3-7-90	1730				

Delivery Method: Federal Express

Comments: Chilled.

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yranz, M. Smith, Martha Smith

Sample Designation/Location	Date Collected	Time Collected	Total As, As+3, As+5, Total Hg, Hg+2, Total Pb, Pb+2 in 1000 ml glass jar, chilled						TOTAL BOTTLES	NOTES
SS-21, 0'-2'	3-12-90	1320	1						1	
SS-21, 2-8'	3-12-90	1400	1						1	
SD-21	3-12-90	1350	1						1	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	3-12-90	1900hr.				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

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1 From (Your Name) Please Print: Mr. Martin Smith
Your Phone Number (Very Important): 516-473-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 11743

2 To (Recipient's Name) Please Print: Mr. John Sherwell
Recipient's Phone Number (Very Important): (512) 454-4797
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes): 8501 No-Tex Blvd.
City: Austin State: Texas ZIP Required: 78759

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): 66097

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Expiration Date

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Street Address
City State ZIP Required

5 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
12 [ ] FEDEX LETTER *
13 [ ] FEDEX PAK *
14 [ ] FEDEX BOX
15 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER 1
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

†Delivery commitment may be later in some areas. *Declared Value Limit $100. **Call for delivery schedule.

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1 [ ] HOLD FOR PICK-UP (FD to Box 1)
2 [ ] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ]
4 [ ] DANGEROUS GOODS (Extra charge) (Not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE ____
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If allowed) (Extra charge)

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Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] ____ lbs.

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11/89

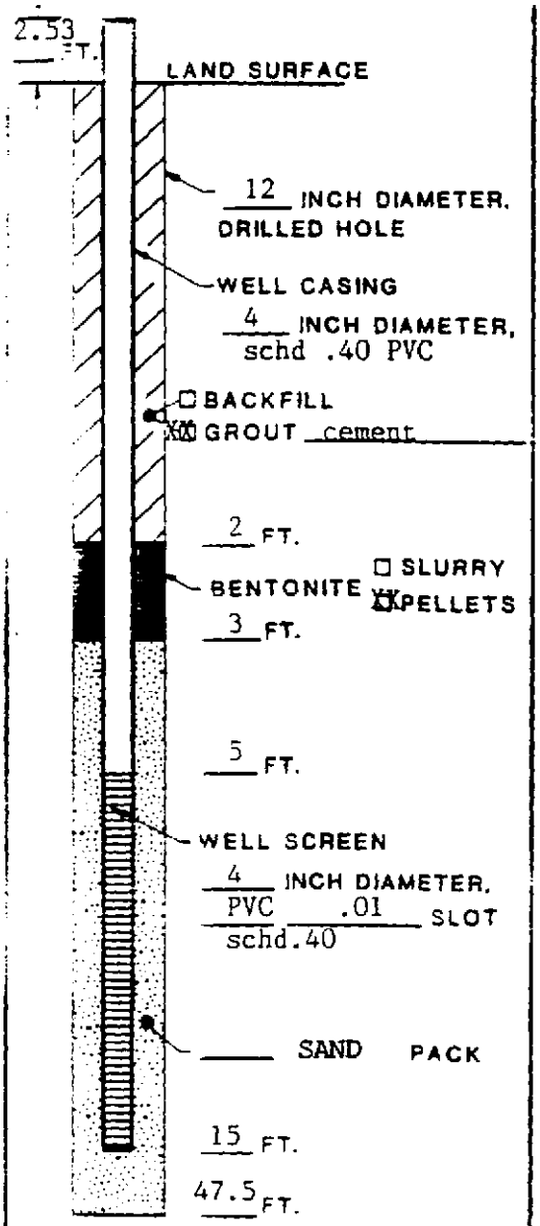
APPENDIX B

Field Documentation and Chain of Custody Forms

Section 2. Well Construction Logs

ROUX
Building Ground-Water Geologists
ROUX ASSOCIATES INC

MONITORING WELL CONSTRUCTION LOG



NOTE:
ALL DEPTHS IN FEET BELOW LAND SURFACE

PROJECT NAME ISRT - GSIP NUMBER 06609Y
WELL NO. OW-21 PERMIT NO. N.A.
TOWN/CITY Woburn
COUNTY Middlesex STATE MA
LAND-SURFACE ELEVATION AND DATUM 73.7 FEET ☒ SURVEYED ☐ ESTIMATED
INSTALLATION DATE(S) 3/14/90
DRILLING METHOD Hollow Stem Auger
DRILLING CONTRACTOR D.L. Maher
DRILLING FLUID Potable Water (from city of Woburn fire hydrant)
DEVELOPMENT TECHNIQUE(S) AND DATE(S) 3/16/90, Pumped and Surged

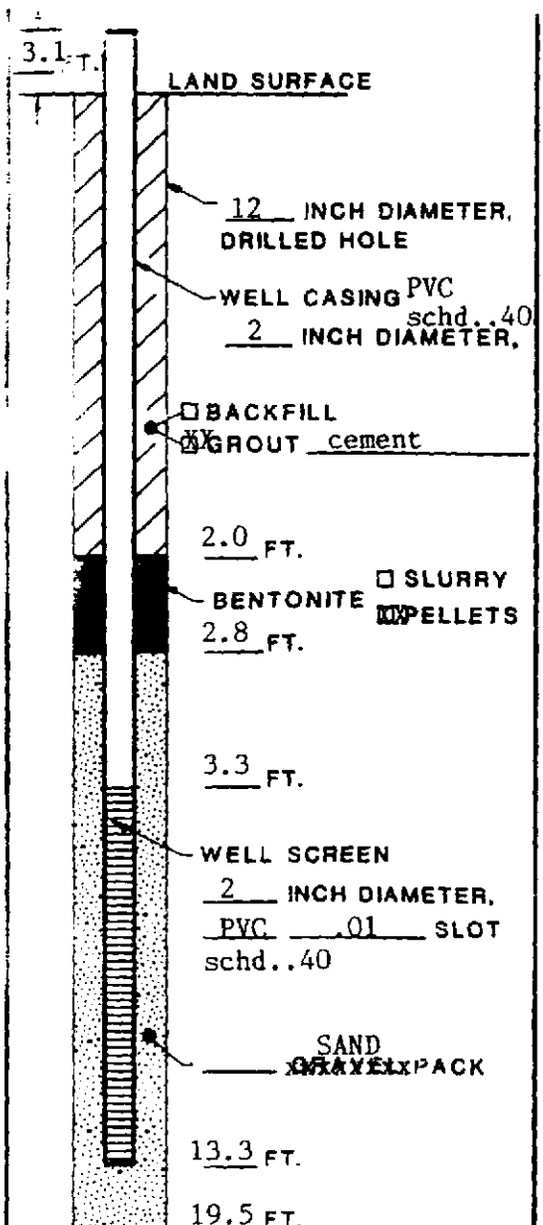
FLUID LOSS DURING DRILLING N.A. GALLONS
WATER REMOVED DURING DEVELOPMENT 300 GALLONS
STATIC DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DURATION N.A. HOURS
YIELD _____ GPM _____ DATE _____
SPECIFIC CAPACITY _____ GPM/FT.
WELL PURPOSE To monitor ground-water quality

REMARKS Hole drilled/cored to 47.5', bentonite up core hole 38-47.5', sand collapse 38-15' as auger pulled up.

HYDROGEOLOGIST Martha Smith

ROUX
Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

MONITORING WELL CONSTRUCTION LOG



NOTE:
ALL DEPTHS IN FEET BELOW LAND SURFACE

PROJECT NAME ISRT - GSIP NUMBER 06609Y
WELL NO. OW-22 PERMIT NO. N.A.
TOWN/CITY Woburn
COUNTY Middlesex STATE MA
LAND-SURFACE ELEVATION AND DATUM 78.5 FEET
☒ SURVEYED
☐ ESTIMATED
INSTALLATION DATE(S) 3/2/90
DRILLING METHOD Hollow Stem Auger
DRILLING CONTRACTOR D.L. Maher
DRILLING FLUID Potable Water (from city of Woburn fire hydrant)
DEVELOPMENT TECHNIQUE(S) AND DATE(S)
3/9/90 Pump and Surge well, 200 gallons of water removed.

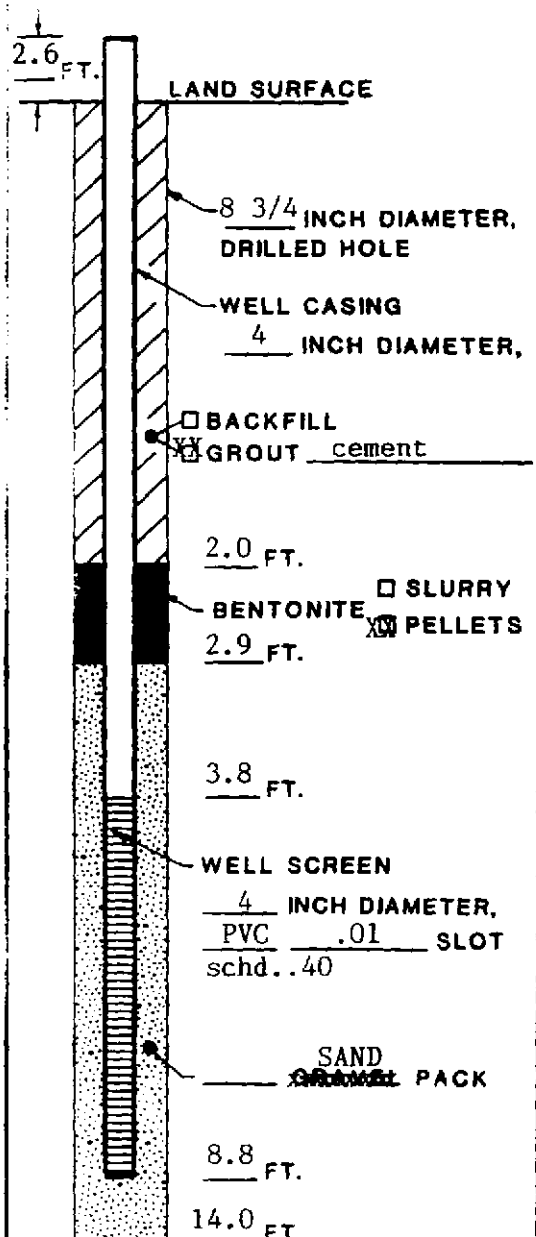
FLUID LOSS DURING DRILLING N.A. GALLONS
WATER REMOVED DURING DEVELOPMENT 200 GALLONS
STATIC DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DURATION N.A. HOURS
YIELD _____ GPM _____ DATE _____
SPECIFIC CAPACITY _____ GPM/FT.
WELL PURPOSE To monitor ground water quality.

REMARKS Hole drilled/cored to 19.5', bentonite up core hole 15'-19.5', sand 13.3'-15'.

HYDROGEOLOGIST Martha Smith

ROUX
Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

MONITORING WELL CONSTRUCTION LOG



NOTE:
ALL DEPTHS IN FEET BELOW LAND SURFACE

PROJECT NAME ISRT - GSIP NUMBER 06609Y
WELL NO. OW-28 PERMIT NO. N.A.
TOWN/CITY Woburn
COUNTY Middlesex STATE MA
LAND-SURFACE ELEVATION AND DATUM 74.5 FEET ☒ SURVEYED ☐ ESTIMATED
INSTALLATION DATE(S) 3/9/90
DRILLING METHOD Hollow Stem Auger
DRILLING CONTRACTOR D.L. Maher
DRILLING FLUID None

DEVELOPMENT TECHNIQUE(S) AND DATE(S)
3/9/90 1 gallon removed, very slow to recover.

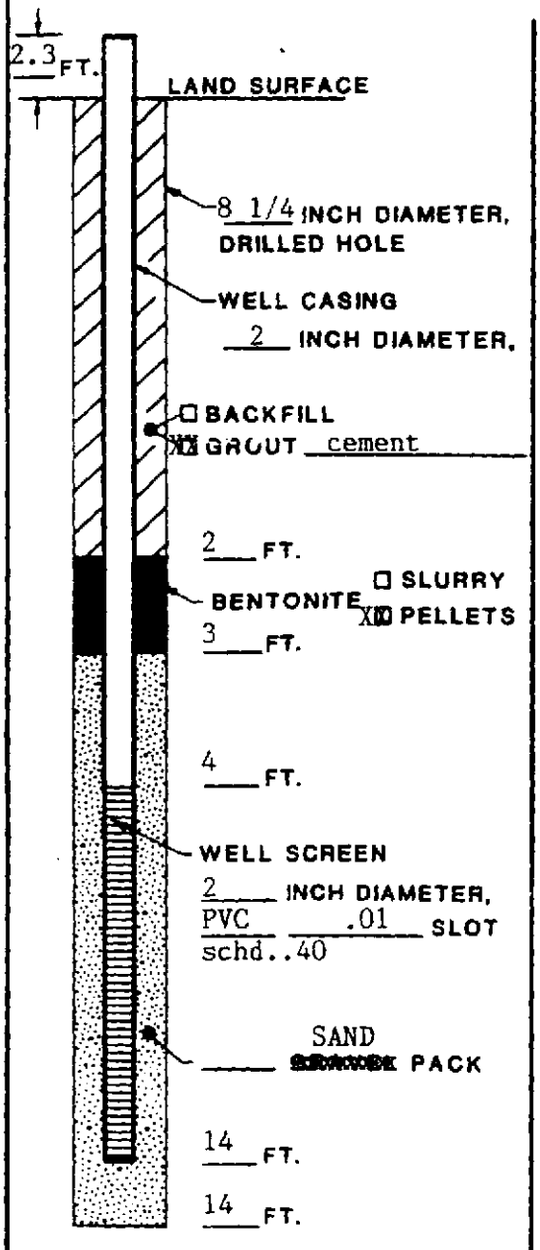
FLUID LOSS DURING DRILLING Not Applicable GALLONS
WATER REMOVED DURING DEVELOPMENT 1 GALLONS
STATIC DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DURATION N.A. HOURS
YIELD _____ GPM _____ DATE _____
SPECIFIC CAPACITY _____ GPM/FT.
WELL PURPOSE To monitor ground-water quality.

REMARKS Hole drilled/cored to 14', bentonite up core hole 9'-14'.

HYDROGEOLOGIST Martha Smith

ROUX
Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

MONITORING WELL CONSTRUCTION LOG



NOTE:
ALL DEPTHS IN FEET
BELOW LAND SURFACE

PROJECT NAME ISRT - GSIP NUMBER 06609Y
WELL NO. PZ-1 PERMIT NO. N.A.
TOWN/CITY Woburn
COUNTY Middlesex STATE MA
LAND-SURFACE ELEVATION
AND DATUM 66.0 FEET ☒ SURVEYED
☐ ESTIMATED
INSTALLATION DATE(S) 3/6/90
DRILLING METHOD Hollow Stem Auger
DRILLING CONTRACTOR D.L. Maher
DRILLING FLUID Potable Water (from city of Woburn fire hydrant)
DEVELOPMENT TECHNIQUE(S) AND DATE(S)
3/16/90- Pumped and Surged three times. Each time well pumped dry and then allowed to recover.

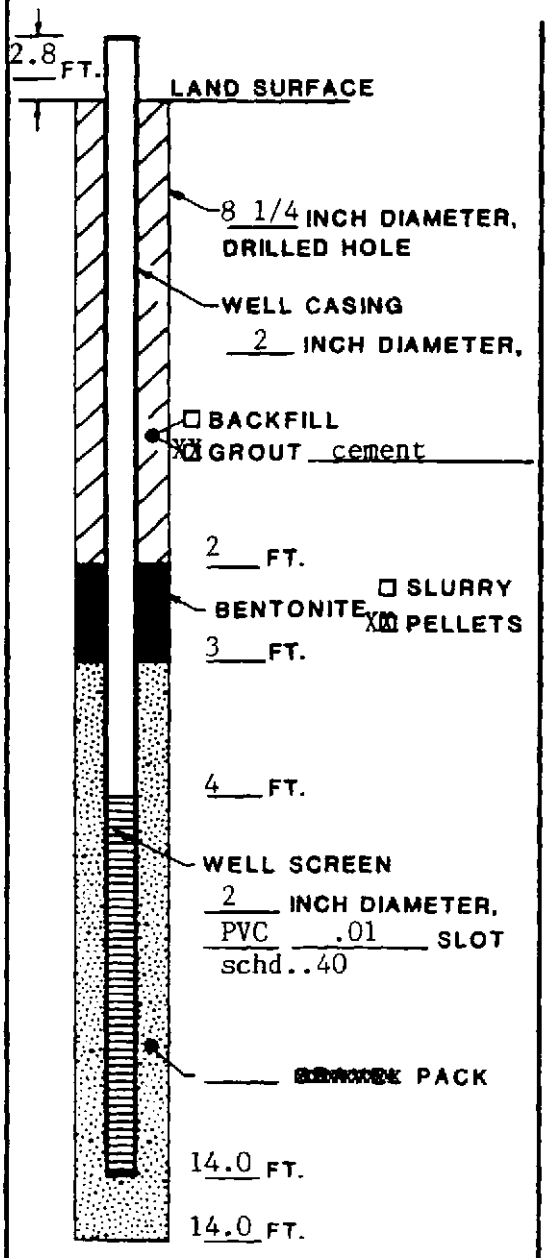
FLUID LOSS DURING DRILLING N.A. GALLONS
WATER REMOVED DURING DEVELOPMENT 15 GALLONS
STATIC DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DURATION N.A. HOURS
YIELD _____ GPM _____ DATE _____
SPECIFIC CAPACITY _____ GPM/FT.
WELL PURPOSE Measurement of ground-water elevations.

REMARKS

HYDROGEOLOGIST Martha Smith

ROUX
Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

MONITORING WELL CONSTRUCTION LOG



NOTE:
ALL DEPTHS IN FEET
BELOW LAND SURFACE

PROJECT NAME ISRT - GSIP NUMBER 06609Y
WELL NO. PZ-2 PERMIT NO. N.A.
TOWN/CITY Woburn
COUNTY Middlesex STATE MA
LAND-SURFACE ELEVATION
AND DATUM 66.00 FEET ☒ SURVEYED
☐ ESTIMATED
INSTALLATION DATE(S) 3/7/90
DRILLING METHOD Solid Stem Auger
DRILLING CONTRACTOR D.L. Maher
DRILLING FLUID None

DEVELOPMENT TECHNIQUE(S) AND DATE(S)
3/16/90 Well Pumped and Surged

FLUID LOSS DURING DRILLING Not Applicable GALLONS
WATER REMOVED DURING DEVELOPMENT 55 GALLONS
STATIC DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DEPTH TO WATER N.A. FEET BELOW M.P.
PUMPING DURATION N.A. HOURS
YIELD _____ GPM _____ DATE _____
SPECIFIC CAPACITY _____ GPM/FT.
WELL PURPOSE Measurement of ground-water Elevations.

REMARKS

HYDROGEOLOGIST Martha Smith

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 3. PDI Task GW-1 - Aquifer Thickness Boring and Monitoring Well Geologic Logs

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 4/24/90
Project Industri-Plex Site PDI
Client Golder Associates
Page 1 Of 1
Logged By L. McTiernan
Well No. ATB-1
Loc. Woburn, Mass
M.P. Elevation 64.53
Drilling Started 2/28/90 Ended 2/28/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 10"
Final Depth (ft.) 8.0'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Hnu	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
2.7		1.65	0-2'			0	Top 1.0': Brown medium to coarse SAND, trace organic material. Bottom: Black fine SAND; trace organic material, stiff
1.8		0.35	5-7'			5	Brown fine-medium SAND, some fine gravel; bottom is black organic material, Strong H_2S odor. B.O.B @ 8.0'
						10	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/1/90
Project Industri-Plex PDI
Client Golder Associates
Page 1 Of 2
Logged By L.McTiernan
Well No. ATB-2
Loc. Woburn, Mass
M.P. Elevation 64.50
Drilling Started 2/27/90 Ended 3/21/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 54'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
--	1	1.25'	0-2'		SP		0-0.5' Woody mulch 0.5-1.25 Light to dark brown fine to coarse (+) SAND, little fine to coarse (+) Gravel.
4.6	2	1.0'	5-7'		SW	5	Dark brown fine (+) to medium SAND, little coarse Gravel, trace woody debris, wet.
9.1	3	1.05'	10-12'		GW SW	10	0-0.95 Gray fine to coarse GRAVEL and coarse sand. 0.45-1.05 Gray fine to medium SAND.
5.2	4	1.9'	15-17'		SP	15	Gray fine to medium SAND, trace fine to medium Gravel.
10.0	5	1.25	20-22'		SP	20	Gray fine (+) to coarse SAND, little fine Gravel.
9.4	6	0.5'	25-27'		SP	25	Brown medium to coarse SAND, little fine Gravel.
--	7	0.9'	30-32'		SP	30	Fine to coarse (+) SAND, and fine Gravel.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

PID erratic due to high humidity.

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/21/90
Project Industri-Plex PDI
Client Golder Associates
Page 2 of 2
Logged By L. McTiernan
Well No. ATB-2
Loc. Woburn, Mass
M.P. Elevation 64.60
Drilling Started 2/27/90 Ended 3/21/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 54'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
—	8	1.4'	35-36.5'		SW	35	Brown fine to medium SAND, trace fine Gravel.
—	9	1.4'	40-41'		SW	40	Brown medium SAND Auger refusal @ 41.5' Soft weathered bedrock 41.5 to 54.0.
	10	0.2'	47.5.0'			45	Soft weathered mafic rock.
	11	0.65'	51-54'	22%recovery		50	Gray-green fine grain gabbro, little magnetite, fractured, weathered.
						55	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/1/90
Project Industri-Plex P.D.I.
Client Golder Associates
Page 1 Of 2
Logged By L. McTiernan
Well No. ATB-3
Loc. Woburn, MA
M.P. Elevation 61.7
Drilling Started 2/28/90 Ended 3/11/90
Driller D.L. Maher
Type Of Rig Hollow-stem auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 50'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Split-Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
6.5	1	1.5	0-2'		SM		Dark brown fine sand and silt, little organic debris, stiff. Brown medium sand, little fine gravel at 0.35-0.95'.
4.1	2	0.6'	5-7'		OL SW	5	Dark brown silt and clay, some organic material, stiff. Coarse sand 0-0.1'.
18.2	3	0.95'	10-12'		ML SP	10	Dark brown silt and fine sand, little coarse gravel. Fine-coarse sand at 0.85-0.95'.
9.8	4	1.15'	15-17'		SW	15	Gray medium to coarse sand, some fine gravel. Wet.
8.9	5	1.0'	20-22'		SW	20	0-0.7' Gray coarse sand and fine gravel. 0.7-1.0' Light brown fine sand.
7.4	6	1.7'	25-27'		SW OL	25	0-1.05' Gray-brown coarse sand, some fine gravel. 1.05-1.7' Light brown silt & clay, trace organic material very stiff.
---	7	NR	30-32'			30	No recovery.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/1/90
Project Industri-Plex P.D.I.
Client Golder Associaties
Page 2 of 2
Logged By L. McTiernan
Well No. ATB-3
Loc. Woburn, MA
M.P. Elevation 61.7
Drilling Started 2/28/90 Ended 3/11/90
Driller D.L. Maher
Type Of Rig Hollow-Stem Auger

WELL DATA
Hole Diam. (in.) 10
Final Depth (ft.) 50'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Split Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
1.3	8	0.55'	35-37'		GW	35	Gray fine gravel and coarse sand.
6.3	9	0.7'	40-40.3	100/4"	SW	40	Gray fine sand, some fine gravel.
25.3	10	0.6	45-45.3	200/4"	SP	45	Gray fine to coarse sand, some fine gravel (Gabbro). Auger refusal at 46.0'.
---	11	0.2	46-46.2				
	12	2.3'	46.4-49.4'	77% recovery		50	Dark grey fine grain gabbro trace pyrite, calcite veins. Oblique fractures, two sand seams.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri-Plex PDI
Client Golder Associates, Inc.
Page 1 of 2
Logged By L. McTiernan
Well No. ATB-4
Loc. Woburn, MA
M.P. Elevation 57.20
Drilling Started 3/5/90 Ended 3/26/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 49.5'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	1	1.2'	0-2'	4,12,11,12	SW $^{d}_{u}$ SM		0-0.75'-Brown medium SAND, little fine gravel. 0.75-0.95'-Artificial fill material light brown fine SAND and silt.
8.3	2	1.25'	5-7'	5,20,20,23	SM $^{d}_{u}$	5	Light brown fine SAND and silt. Stiff. Wet below 0.3'.
0.0	3	1.1'	10-12'	4,6,8,10	SW	10	Brown fine to medium SAND.
12.1	4	1.4'	15-17'	6,8,13,15	SW	15	Brown fine to medium SAND. Graded (fining upwards) Iron staining from 0.9-1.1'.
0.0	5	1.35'	20-22'	6,8,11,11	SW	20	Brown fine (+) to medium SAND. Medium sand in lense from 0.9-1.1'.
0.0	6	1.5'	25-27'	8,13,16,20	SW	25	Brown fine (+) to medium SAND.
0.0	7	1.65'	30-32'	9,16,22,29	SM $^{d}_{u}$	30	Gray fine SAND and silt.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri - Plex PDI
Client Golder Associates
Page 2 of 2
Logged By L. McTiernan
Well No. ATB-4
Loc. Woburn, MA
M.P. Elevation 57.20
Drilling Started 3/5/90 Ended 3/26/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 49.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
2.3	3	1.4'	35-37'	7,12,15,17	SW	35	Gray fine SAND. Stiff
0.0	9	1.6'	40-42'	4,6,7,14	SW	40	Gray fine SAND. Stiff.
	10	2.5'	45-49.5'	62% recovery		45	Auger refusal @ 45.0' (bedrock) Dark grey-green fine grain gabbro calcite veins, no fractures

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/8/90
Project Industri-Plex PDI
Client Golder Assoiciates
Page 1 Of 1
Logged By L. McTiernan
Well No. ATB-5
Loc. Woburn, MA
M.P. elevation 74.10
Drilling Started 3/7/90 Ended 3/19/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 10'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	1	0.6	0-2'	8;16;23;28	SP		0-0.45' - Dark brown, medium to coarse SAND, some fine gravel little organic material 0.45-0.6' - Artificial fill material
0.0	2	1.4	5-7'	11,20,34, 50/5"	GP SW	5	0-0.1' - Gray fine to coarse gravel, some coarse sand. Wet. 1.0-1.4' - Gray medium to coarse SAND. Auger refusal @ 7.0' (bedrock)
	3	2.9	7-10'	97%recovery		10	Grey coarse grain diorite pyrite as accessory mineral, calcite veins. Rock has undergone low grade metamorphism. Oblique and horizontal fractures contain sand seams, weathered.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/8/90
Project Industri-Plex P.D.I
Client Golder Associates
Page 1 Of 2
Logged By L. McTiernan
Well No. ATB-6
Loc. Woburn, MA
M.P. Elevation 65.70
Drilling Started 3/7/90 Ended 3/9/90
Driller D.L. Maher
Type Of Rig Hollow-Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 50'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type Split-spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	1	0.85'	0-2 '	5,9,11,14	SP		Brown fine to medium SAND, trace fine Gravel, trace organic material
—	2	0.5'	5-7'	6,5,5,5	SW	5	Brown fine to medium SAND.
0.0	3	1.1'	10-12'	5,8,6,4	SP	10	Light brown, fine to medium SAND, oxidized brown-orange. Lense of coarse sand and fine gravel from 0.1-0.3'. Wet.
0.0	4	2.0'	15-17'	8,8,8,10	SW	15	Light brown, medium to coarse SAND.
0.0	5	2.0'	20-22'	12,12,12,23	SW	20	Brown fine to medium(+) SAND, trace organic material at 0.6' (fine from 0.6-1.2').
0.0	6	1.7'	25-27'	6,14,11,22	SW	25	Light brown, fine to medium SAND (fining downwards),
0.0	7	1.5'	30-32'	4,8,38,31	SW^{d} SM$^{d}_{u}$	30	0-0.8'-Brown medium SAND 0.8-1.5'-Brown fine SAND and silt, trace coarse gravel. Stiff

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/9/90
Project Industri-Plex P.D.I.
Client Golder Associates
Page 2 Of 2
Logged By L. McTiernan
Well No. ATB-6
Loc. Woburn, MA
M.P. Elevation 5.7
Drilling Started 3/7/90 Ended 3/9/90
Driller D.L. Maher
Type Of Rig Hollow-Stem Auger

WELL DATA
Hole Diam. (in.)
Final Depth (ft.) 50'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Hnu	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	8		35-40'			35	No sample.
0.0	9	0.5'	40-40.25'	100/3"		40	Auger refusal at 40.25' (bedrock).
	10	2.0'	46.6-50.1	57% recovery		45	Fractured, weathered gabbro with numerous veins of quartz and low -quartz granite(syanite?)
						50	(41-50' was mostly weathered bedrock and seams of sand) (Cored with 3" bedrock corer) B.O.B 50'.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/14/90
Project Industri-Plex P.D.I.
Client Golder Associates
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Logged By L. McTiernan
Well No. ATB-7
Loc. Woburn, MA
M.P. Elevation 68.00
Drilling Started 3/12/90 Ended 3/19/90
Driller D.L. Maher
Type Of Rig Hollow-Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 14'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Split-Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
2.5	1	1.2'	0-2'	10,10,18, 18	SP		Brown to black, fine to coarse sand and fine to coarse gravel.
4.1	2	0.2'	5-7'	3,3,5,25	SP	5	Brown medium to coarse Sand, some fine to coarse gravel.
---	3 4	0.3' 2.9'	9-5-10.1'	70,50/1 89.6%recovery		10	Auger refusal @ 9.5' (bedrock) Brown-gray fine to medium grain gabbro, severely fractured. Oblique and horizontal fractures some (+) sand seams, weathered.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/14/90
Project Industri-Plex P.D.I.
Client Golder Associates
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Logged By L. McTiernan
Well No. ATB-8
Loc. Woburn, MA
M.P. Elevation 84.40
Drilling Started 3/12/90 Ended 3/23/90
Driller D.L. Maher
Type Of Rig Hollow-stem auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 53.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type Split-spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.7	1	1.1'	0-2'	7,4,9,23	SP		Brown fine to medium (+) sand, trace fine to coarse gravel.
4.7	2	0.75'	5-7'	9,19,21,22	SP	5	0-0.4 dark brown fine sand, some fine to coarse gravel. Wet 0.4-0.75 light brown laminated fine sand and silt. Stiff lense of fine gravel and coarse sand at 0.55-0.6.
1.6	3	NR	10-10.5'	65/6"		10	No recovery.
1.9	4	1.1'	15-17'	8,14,23,29	SP	15	Gray fine to coarse sand, some fine to coarse gravel, trace silt and clay
5.9	5	1.55'	20-22'	7,38,50,30	SP	20	Gray fine to coarse sand, some fine to coarse gravel, trace silt and clay.
2.5	6	0.45'	25-27'	20,41,50/1"	SP	25	Gray fine to coarse (+) sand, some fine to coarse gravel, trace silt and clay.
4.4	7	NR	30-30.4'	100/5"		30	No recovery.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/14/90
Project Industri-Plex P.D.I.
Client Golder Associates
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Logged By L. McTiernan
Well No. ATB-8
Loc. Woburn, MA
M.P. Elevation 84.40
Drilling Started 3/12/90 Ended 3/23/90
Driller D.L. Maher
Type Of Rig Hollow-Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 53.5'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Split Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	8	NR	35-35,25'	100/3"		35	No recovery
0.0	9	NR	40-40,25'	100/3"		40	No recovery
0.0	10	0.9'	45-46'	49,130	SP	45	Gray fine to coarse sand, some fine gravel, trace silt and clay. Barely wet. Auger refusal @ 46' (bedrock).
	11	2.7'	50-53.5'	90% recovery		50	Grey coarse grain diorite, low quartz, trace pyrite as accessory mineral. Oblique fractures filled with calcite sand; weathered.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri - Plex PDI
Client Golder Associates
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Logged By Hillary Hollister
Well No. ATB-9
Loc. Woburn, MA
M.P. Elevation 62.7
Drilling Started 3/19/90 Ended 3/22/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 43.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	1	1.4	0-2'	6,6,8,8	SM d u SP		0-0.3' Organic SAND 0.3-0.9' Brown medium SAND, some coarse gravel.
11.2	2	0.3	5-7'	5,9,5,9	SW	5	Buff fine SAND, little coarse gravel
---	3	NR	10-12'	13,16,15,29		10	No recovery
7.3	4	0.9	15-17'	2,2,5,7	SP	15	Brown coarse SAND, some coarse to fine gravel.
0.0	5	0.9	20-22'	8,20,30,30	SP CL	20	0-0.4' Brown coarse SAND, some coarse to fine gravel. 0.4-0.9' Brown/red clayey silt and coarse gravel, poorly sorted matrix
0.0	6	0.4	25-27'	62,17,10,6	GP	25	Brown coarse to fine GRAVEL, some coarse sand.
0.0	7	1.6	30-32'	60,35,34,36	GW SM d u	30	0-0.5' Fine to coarse GRAVEL, 0.5-1.6' Grey brown fine SAND, some clay, little coarse to fine gravel, poorly sorted, tight, till

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri - Plex PDI
Client Golder Associates
Page 2 of 2
Logged By Hillary Hollister
Well No. ATB-9
Loc. Woburn, MA
M.P. Elevation 62.7'
Drilling Started 3/19/90 Ended 3/22/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 43.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	8	NR	35-37'			35	Three feet of heaving sands; no recovery.
							Refusal at 39 feet. (Bedrock)
	9	2.8	40.5-43.5'			40	Grey-green medium to coarse grain gabbro, pyrite as accessory mineral large amount of plagioclase at top of sample. Vertical and oblique fractures filled with calcite, some sand seams in oblique fractures; weathered.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
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GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri - Plex PDI
Client Golder Associates
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Logged By Hillary Hollister
Well No. ATB-10
Loc. Woburn, MA
M.P. Elevation 62.0'
Drilling Started 3/20/90 Ended 3/30/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 73.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
3.7	1	1.4'	0-2'	3,3,8,12	OL SM d u OL		0-0.5' Organic SILT with roots 0.5-0.9' Dark brown silt and fine sand, little coarse to fine (+) gravel. 0-4' Cuttings black organic SILT.
0.0	2	1.3'	5-7'	3,3,4,4	OL	5	Grey organic SILT and clay, laminated silt seams wet.
0.0	3	2.0'	10-12'	1,2,1,2	PT	10	Dark brown organic SILT and clay, wooded fragments, (immature peat) moist.
36.1	4	2.0'	15-17'	1,2,1,2	OH	15	Grey organic SILT, little coarse sand, trace fine gravel, sand seams throughout sample, wooded fragments?
0.4	5	1.1'	20-22'	13,35,32,30	GP	20	Brown coarse to fine GRAVEL and coarse (+) to medium sand.
0.0	6	0.4'	25-27'	4,5,7,10	GP	25	Brown coarse to fine GRAVEL, trace coarse sand.
0.0	7	0.3'	30-30.5'	100/6"	GP	30	Dark grey coarse GRAVEL, trace coarse sand.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri - Plex PDI
Client Golder Associates
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Logged By Hillary Hollister
Well No. ATB-10
Loc. Woburn, MA
M.P. Elevation 62.0
Drilling Started 3/20/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8
Final Depth (ft.) 73.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	8	0.2'	33-33.5'	100/5"		33	Auger refusal at 33.5'.
0.0	9	1.1'	34-37'			35	Spun 3" casing through a gabbro boulder and grantic boulder.
0.0	10	0.4'	38.5-39.5'	72, 120/4"	SP	40	Brown fine to medium SAND, some fine gravel, some silt.
0.0	11	0.75'	42.5-44.5'	30,120,90,120	SP		Brown fine to coarse SAND, some fine gravel, some silt.
						45	
0.3	12	1.0'	48-49'	100 120/3"	GP		Grey fine (+) to coarse GRAVEL and fine to coarse (+) sand. Gravel is angular.
						50	
3.0	13	0.7'	54-55'	30,100,100/2"	SP	55	Brown medium (+) to coarse SAND Some fine (+) to coarse gravel.
3.9	14	0.8'	59-60.25'	56,125,168/3"	SP	60	Grey fine to coarse SAND, some fine to coarse gravel, tight.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri-Plex PDI
Client Golder Associates
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Logged By H. Hollister
Well No. ATB-10
Loc. Woburn, MA
M.P. Elevation 62.00
Drilling Started 3/20/90 Ended 3/30/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 73.5'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
						65	
0.0	15	0.25'	67.5-68.25'	38,155/3"			Roller bit drives hard. Grey fine to coarse SAND, little fine gravel little silt.
---	16	2.2'	70.5-73.5'	73% recovery		70	Refusal @ 69.5'. (Bedrock) Grey low quartz, hornblende diorite epidote as accessory mineral, oblique fractures and vertical fractures, weathered no sand seams.
						75	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri - Plex PDI
Client Golder Associates
Page 1 of 2
Logged By Hillary Hollister
Well No. ATB-11
Loc. Woburn, MA
M.P. Elevation 62.6
Drilling Started 3/20/90 Ended 4/3/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 46.5'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1		0-2'		SP		Coarse to medium SAND, trace coarse gravel. 2-5' Cuttings: light brown medium to coarse SAND, little coarse gravel.
0.0	2	1.5'	5-7'	6,8,8,8	SW	5	Buff fine to medium SAND.
0.0	3	1.6'	10-12'	3,7,7,8	SM^d_u	10	Light tan fine sand and silt, laminated sand seams.
0.0	4	1.2'	15-17'	2,4,6,8	SP SP	15	Top 0-0.6' Grey fine to medium SAND, some fine gravel, trace silt. Bottom 0.6-1.2' Brown coarse to medium SAND and coarse to fine (+) gravel (oxidized between top and bottom layer)
0.0	5	0.5'	20-22'	4,4,4,4	GP	20	Brown coarse to fine GRAVEL, some coarse to medium sand, poorly sorted.
0.0	6	1.4'	25-27'	8,12,11,19	GM^d_u SP	25	Top 0-1.2' Brown coarse to fine (+) GRAVEL and coarse to fine sand, trace silt. Bottom 1.2-1.4' Brown medium to fine SAND, trace gravel, trace silt.
0.0	7	0.9'	30-32'	9,14,19,21	SP	30	Light brown coarse to fine (+) SAND, trace silt, trace fine gravel (oxidize layer 0.6-0.7').

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri - Plex PDI
Client Golder Associates
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Logged By Hillary Hollister
Well No. ATB-11
Loc. Woburn, MA
M.P. Elevation 62.60
Drilling Started 3/20/90 Ended 4/3/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8
Final Depth (ft.) 46.5'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	8	0.5'	35-37'	6/15/32/52	GP	35	Brown and black coarse GRAVEL, some coarse sand, poorly sorted.
	9	5.1'	40-46.5'	85% recovery		39	Auger refusal at 39'. (Bedrock) Dark grey-green fine grain gabbro. Vertical and horizontal fractures; foliated; weathered. Vertical fractures filled with calcite (secondary mineralization). Horizontal fractures are sand seams.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 3/5/90
Project Industri - Plex PDI
Client Golder Associates
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Logged By Hillary Hollister
Well No. ATB-12
Loc. Woburn, MA
M.P. Elevation 120.68
Drilling Started 3/21/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8
Final Depth (ft.)
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	1	1.7'	0-2'	5,6,7,8	SW SW		0-0.6' Dark brown medium organic SAND, some roots. 0.6-1.7' Orange/brown medium SAND, well sorted
0.0	2	1.2	5-6.5'	27 40,50,4	SP	5	Brown medium sand and coarse gravel; moist.
							uttings: grey till; hard.
						7	Auger refusal at 7' cutting: hard grey till.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 4/6/90
Project Inddustri-Plex PDI
Client Golder Associates
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Logged By L. McTiernan
Well No. ATB-13
Loc. Woburn, Mass
M.P. Elevation 54.0
Drilling Started 4/4/90 Ended 4/5/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 98.5'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
4.6	1	1.6	0-2.0	2,7,9,11	SW	0	0-0.9 dark brown fine to medium SAND, trace fine gravel, trace silt trace organics. Bottom: Orange brown medium SAND with laminae of dark brown fine SAND, and silt.
4.2	2	1.2	5-7.0'	8,15,15,18	GP	5	Light brown fine GRAVEL and coarse sand, trace coarse gravel, oxidized from 0.7-0.8'.
5.1	3	0.6	10-12.0'	10,12,12,25	SP	10	Brown medium to coarse SAND and fine gravel; wet. cuttings: fine gravel.
6.6	4	1.75'	15-17.0'	6,8,4,8	MH	15	Grey SILT, little fine sand, iron staining 0-0.3'; Thin (less than 0-0.25) lenses of dark gray clay. Obliquely oriented.
5.8	5	1.6	20-22.0'	6,7,6,5	MH	20	Gray SILT, little fine Sand, little black clay; laminated clay seams in top 0.5' of sample.
5.5	6	1.5	25-27.0'	4,6,5,5	SM_u^d	25	Gray Silt and fine sand; coarsening downward; stiff.
3.8	7	1.5	30-32.0'	6,10,16,28	SM_u^d	30	Gray fine SAND and silt, trace fine gravel, laminated in lcaceous sand; stiff.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

2" Diameter rockcore collected

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 4/6/90
Project Industri-Plex Site
Client Golder Associates
Page 2 Of 4
Logged By H. Hollister
Well No. ATB-13
Loc. Woburn, MA
M.P. Elevation 54.0
Drilling Started 4/4/90 Ended 4/5/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 98.5"
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

%	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
6.8	8	1.65	35-37'	8,11,8,16	SP	35	Brown fine(+) to Medium SAND, some silt trace fine gravel; Laminated in lower half of sample.
4.0	9	0.8	40-42'	55,97/5"	GW	40	Fine GRAVEL, large Pebble in tip.
6.3	10	0.5	45-47'	100,89	SP	45	Brown fine to medium SAND, some fine to coarse gravel.
3.4	11	0.55	50-52'	100,130,50/0	SMd GP	50	Top 0.2': Brown fine SAND and silt. Bottom: Brown fine to coarse GRAVEL and fine to coarse Sand.
6.2	12	1.7	55-57'	30,55,27,30	SW GP	55	Top 1.15': Brown to grey fine(+) to medium SAND, trace fine gravel. Bottom: Grey to green fine to coarse GRAVEL, some medium to coarse sand.
0.0	13	2.0	60-62'	6,7,11,15	SP	60	Grey fine to coarse SAND, trace fine gravel, trace silt; very Stiff; fining downward.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

2" diameter rock core collected

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	16101
Date	4/6/90
Project	Industri-Plex Site
Client	Golder Associates
Page	3 of 4
Logged By	H. Hollister
Well No.	ATB-13
Loc.	Woburn, MA
M.P. Elevation	54.0'
Drilling Started	4/4/90
Ended	4/5/90
Driller	D.L. Maher Company
Type Of Rig	Hollow Stem Auger

WELL DATA

Hole Diam. (in.)	8"
Final Depth (ft.)	98.5'
Casing Diam. (in.)	
Casing Length (ft.)	
Screen Setting (ft.)	
Screen Slot & Type	
Well Status	

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type	Split spoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

Hnu	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0	14	1.7	64-66'	4,4,10,14	SP	64	Grey fine to coarse SAND, trace fine gravel.
2.2	15	1.6	70-72'	4,6,8,8	SW	70	Grey fine to medium SAND.
1.1	16	2.0	75-77'	6,12,12,23	SW	75	Same as above
2.5	17	1.8	80-82'	5,10,15,22	SMu d	80	Grey fine SAND and Silt; Some medium sand; coarsening downward; well sorted.
0.3	18	1.7	85-87'	6,14,15,15	GW SMu d GW	85 90	Grey fine GRAVEL, little fine to coarse sand, trace silt. middle Grey fine SAND and Silt, trace clay, trace fine gravel. back to grey fine GRAVEL. little fine to coarse sand, trace silt
			92.5'		Bedrock		Auger refusal @ 92.5' (Bedrock)
			95-98.5'	91'6 recovery		95	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

2" Diameter rockcore collected

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 4/6/90
Project Industri-Plex Site
Client Golder Associates
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Logged By H. Hollister
Well No. ATB-13
Loc. Woburn, MA
M.P. Elevation 54.0
Drilling Started 4/4/90 Ended 4/5/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 98.5'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
		95-98.5'	91'6 recovery	Bedrock		Some fractures, oblique and vertical Fractures in rock. sand Seamsin fractures near top of rock.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

2" Diameter rock core collected

CONSULTING GROUND WATER GEOLOGISTS
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GEOLOGIC LOG

Study No. 16101Y Date 4-11-90
Project INDUSTRI-PLEX PDI
Client Golder Associates
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Logged By H.H.
Well No. ATB-14
Loc. Woburn, MA
M.P. Elevation 54.10
Drilling Started 4-9-90 Ended 4-10-90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.)
Final Depth (ft.) 47.3
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Split Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID (ppm)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	0.7'	0-1'	4,35	SP		0-0.3' Brown Coarse SAND, little fine Gravel, some organic materials, Larvae.
							0.3-0.5' Brown fine to medium SAND, little fine Gravel.
							0.5-0.7' Orange Medium to Coarse SAND, little fine Gravel.
							Split Spoon refusal at 1'-hit a rock
							0-5' Cuttings-Brown Medium SAND, coarse Gravel(cobbles), hard drilling.
							DTW at 3'
	2	1.1'	5-7'	6,10,22,35	SW	5	0-0.6' Grey medium to coarse SAND.
					SP		0.6-0.7' Light brown coarse SAND and fine to coarse Gravel.
					SM d u		0.7-1.1' Light brown fine SAND, trace silt, stiff.
							5-10' Cuytings- Coarse SAND and cobbles.
	3	NR	10-12'	30,51,30,31		10	No recovery
	4	0.9'	15-17'	26,22,19,11	SP SW	15	0.5' Brown coarse SANDand fine Gravel. 0.5-0.9' Light brown fine

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

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GEOLOGIC LOG

Study No. 16101Y Date 4-11-90
Project INDUSTRI-PLEX PDI
Client Golder Associates
Page 2 of 3
Logged By H.H.
Well No. ATB-14
Loc. Woburn, MA.
M.P. Elevation 54.10
Drilling Started 4-9-90 Ended 4-10-90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 47.3
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Split Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID (ppm)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
							SAND, trace silt.
	5	1.2	20-22'	3,13,12,12	SP	20	Brown fine SAND, trace fine Gravel.
	6	0.9	25-27'	10,11,12,14	SP	25	Brown fine SAND, trace fine Gravel.
	7	1.1	30-32'	5,8,5,8	SM_u^d	30	Brown fine SAND, little (+) Silt, red thin laminations.

REMARKS: (1) In feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 4/11/90
Project Industri-Plex PDI
Client Golder Associates
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Logged By Hillary Hollister
Well No. ATB-14
Loc. Woburn, MA
M.P. Elevation 54.10
Drilling Started 4/9/90 Ended 4/10/90
Driller D.L. Maher
Type Of Rig Hollow stem auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 47.3
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID (ppm)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	8	1.6'	35-37'	5,13,27,70	SP SM d u SP	35	0-0.4' Brown medium to coarse SAND and fine gravel. 0.4-1.1'Brown fine SAND, some silt, trace fine gravel. 1.1-1.6' Brown medium to coarse SAND, trace fine gravel. Auger refusal at 37'.
	9	1.1'	39.5-43.3'	29% recovery		39 39.5	GABBRO, veins of feldspar with mica, oblique fracture filled with calcite and sand, sand seams, very weathered
	10	4.0'	43.3-47.3'	100%recovery		43 43.3	Top 0-1.5' Grey green GABBRO with feldspar musconite, veins, sand seams, weathered. Bottom 1.5-4.0' Grey green GABBRO, plagioclose with calcite veins, two fractures over 3' filled with calcite, small veins are off-set possibly fault fractures at 44.5-45.0', sand seams at 44.0 and 47.3'.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 4/12/90
Project Industri-Plex PDI
Client Golder Associates
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Logged By H. Hollister
Well No. ATB-15
Loc. Woburn, MA
M.P. Elevation 54.24
Drilling Started 4/11/90 Ended 4/12/90
Driller D.L. Maher
Type Of Rig Hollow-stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 116'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID (ppm)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
7.4	1	1.0'	0-2'	2,4,8,8	SP		Dark brown fine to medium SAND trace silt, trace fine Gravel trace organic material Cuttings 0-5': Light brown fine to medium SAND, trace silt.
5.2	2	1.4'	5-7'	6,10,9,10	SP	5	Light brown to gray fine to medium SAND, trace SILT, trace fine Gravel, trace organic material. Moist. Laminated.
1.7	3	1.3'	10-12'	3,5,6,7	SP	10	Light brown to gray fine coarse SAND, trace organic material. Wet.
1.2	4	1.3'	15-17'	1,4,5,8	SW	15	Light brown to gray fine to medium SAND, iron-stained and laminated.
0.0	5	1.5'	20-22'	4,8,5,7	SW	20	Orange-brown to gray fine (+) to medium SAND, iron-stained and laminated.
0.0	6	2.0'	25-27'	6,8,9,14	SW	25	Brown medium SAND, iron-stained at 0.5' and 1.4'.
0.0	7	1.6'	30-32'	8,25,23,22	SP	30	Brown to gray fine coarse SAND, little fine(+) to coarse Gravel

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

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GEOLOGIC LOG

Study No. 16101Y Date 4/12/90
Project Industri-Plex PDI
Client Golder Associates
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Logged By H. Hollister
Well No. ATB-15
Loc. Woburn, MA
M.P. Elevation 54.24
Drilling Started 4/11/90 Ended 4/12/90
Driller D.L. Maher
Type Of Rig Hollow-stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 116'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID (ppm)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
2.0.	8	1.6'	35-37'	9,12,15,19	SP GP SP	35	Red to brown coarse SAND, and fine(+) to coarse Gravel; iron-stained; Gravel abundant from 0.6-0.9'.
2.1	9	1.5'	40-42'	12,23,22,24	SP	40	Orange to brown coarse SAND, and fine(+) to coarse Gravel; iron-stained.
2.4	10	1.4'	45-47'	14,21,15,16	SP	45	Orange to brown medium to coarse(+) SAND, and fine(+) to coarse Gravel; coarsening downward, iron-stained.
2.0	11	0.5'	50-52'	24,18,22,34	SW	50	Brown coarse SAND, trace fine Gravel
3.0	12	0.9'	55-57'	10,12,18,14	SP	55	Brown coarse SAND, little fine(+) to coarse Gravel.
3.2	13	1.3'	60-62'	17,16,18,20	SP	60	Brown coarse SAND, some fine(+) to coarse Gravel, coarsening downward; iron-stained.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

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GEOLOGIC LOG

Study No. 16101Y Date 4/12/90
Project Industri-Plex PDI
Client Golder Associates
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Logged By H. Hollister
Well No. ATB-15
Loc. Woburn, MA
M.P. Elevation 54.24
Drilling Started 4/11/90 Ended 4/12/90
Driller D.L. Maher
Type Of Rig Hollow-stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 116'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER
Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID (ppm)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
1.8	14	1.1'	65-67'	8,11,12,14	SP	65	Brown medium to coarse SAND, little fine(+) to coarse Gravel, trace Silt; Silt in lamination at 0.1'; coarsening downward.
1.9	15	1.1'	70-72'	10,35,32,42	SP CL	70	Brown fine to coarse(+) SAND, trace clay, trace fine gravel; Silt and Clay in lamination at 0.75'-0.95'.
1.5	16	1.0'	75-77'	20,28,23,26	SP CL	75	Brown medium to coarse SAND, little silt, little clay, trace fine(-) to coarse(+) Gravel; silt and clay found in lowest 0.3'.
2.0	17	0.8'	80-82'	40,60,14,28	SP	80	Brown fine to coarse SAND, trace fine (+) to coarse Gravel; coarsening downward; Tight.
1.2	18	2.0'	85-87'	45,56,29,20	SP	85	Brown medium to coarse(+) SAND little fine to coarse(+) Gravel; iron-stained.
1.5	19	1.0'	90-92'	36,34,45,57	SP	90	Brown to gray fine to coarse SAND, trace Silt, trace fine Gravel; fining downward; Tight
-	20	1.8'	95-97'	16,45,55,57	SM[d u]	95	Brown to gray fine(+) SAND and Silt, little Clay. Coarsening downward.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16010Y Date 4/12/90
Project Industri-Plex PDI
Client Golder Associates
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Logged By H. hollister
Well No. ATB-15
Loc. Woburn, MA
M.P. Elevation 54.24
Drilling Started 4/11/90 Ended 4/12/90
Driller D.L. Maher
Type Of Rig Hollow-stem Auger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 116'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID (ppm)	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
-	21	1.6'	100-102'	38,37,60,71	SM_u^d	100	Light brown to gray fine to medium SAND, some Silt.
-	22	1.7'	105-107'	12,21,32,40	SM_u^d	105	Light brown to gray fine SAND, and Silt, little Clay
-	23	0.4'	108-108.5'	100/4"		108	Grey fine GRAVEL, some coarse gravel angular rock fragments. Auger refusal at 108' (bedrock).
		3.0'	112-116'	75% recovery		110	Soft weathered bedrock 108'-112'. Grey-green grabbro some oblique and horizontal fractures. Sand seams in fractures.
						115	
						120	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
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GEOLOGIC LOG

Study No. 16101Y Date 4/19/90
Project Industri-Plex Site PDI
Client Golder Associates
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Logged By B. Thomas
Well No. ATB-16
Loc. Woburn, Mass
M.P. Elevation 53.75
Drilling Started 4/16/90 Ended 4/17/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 74'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type Splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Hnu	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.2		1.3	0-2'	2,5,12,15	SM^d_u SW	0	Top 0.6'. Dark brown fine -medium SAND, little coarse gravel, little silt; moist Bottom: Buff medium SAND,little fine gravel; moist
0.2		1.0	5-7'	13,14,12,10	SW	5	Brown medium to coarse SAND, well sorted; wet @ 4.6'.
0.0		1.3	10-12'	17,65,44,53	SM^d_u SP	10	Top 1.0' Grey coarse SAND some fine to coarse gravel, some silt, trace clay. Bottom 0.3': Brown coarse SAND, some fine gravel;oxidized tight.
0.0		1.0	15-17'	14,18,19,15	SM^d_u	15	Grey fine SAND, little silt; laminated orange fine sand seams.
0.1		1.1	20-22'	17,10,10,14	SW	20	Brown medium SAND, trace fine gravel; well sorted; oxidized sand seams near 20'.
0.0		1.3	25-27'	5,5,8,8	SW	25	Brown coarse to medium SAND well sorted; coarse sand in middle of sample.
0.1		1.5	30-32'	3,6,7,13	SW	30	Brown medium SAND, little coarse sand @ bottom; well sorted

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 1610ly Date 4/19/90
Project Industri-Plex Site PDI
Client Golder Associates
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Logged By R. Thomas
Well No. ATB-16
Loc. Woburn Mass
M.P. Elevation 53.75
Drilling Started 4/16/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 74'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Hnu	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		1.6'	35-37'	7,14,15,26	SW	35	Brown medium to coarse SAND, well sorted
0.2		1.7'	40-42'	4,7,7,8	SW	40	Top 1.0': Brown coarse SAND . Bottom: Grey medium SAND, little grey clay; clay seame 41.3'.
0.0		1.3'	45-47'	5,8,10,15	SW	45	Brown medium to coarse SAND.
0.0		1.3'	50-52'	7,7,6,8	SW	50	Grey medium SAND.
0.0		1.5'	55-57'	8,10,11,11	SMu[d]	55	Grey fine to medium SAND, little silt.
0.0		1.4'	60-62	5,6,17,50	SMu[d]	60	Grey fine to medium SAND, little coarse gravel, little silt. Gravel is red sandstone fragments.
		0.5'	62-64'	2,5,19,20	SMu[d]		Grey fine to medium SAND, little silt, little red sand from crushed sandstone.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 4/19/90
Project Industri-Plex Site PDI
Client Golder Associates
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Logged By B. Thomas
Well No. ATB-16
Loc. Woburn Mass
M.P. Elevation 53.75
Drilling Started 4/16/90 Ended 4/17/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 74'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type splitspoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Hnu	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		0.3'	65-67'	17,26,62,90	GP	65	Auger refusal @ Grey coarse GRAVEL and medium to coarse sand, little silt. (till).
							Bedrock @ 68.0'
		2.8'	70-74'	70% recovery		70	Grey-green medium grain Gabbro. Calcite veins, little plagioclase. Vertical and oblique fractures. Sand seams in fractures; weathered.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 5/8/90
Project Industri-Plex Site
Client Golder Associates
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Logged By H. Hollister
Well No. ATB-17
Loc. Woburn, MA
M.P. Elevation 63.0
Drilling Started 5/3/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.)
Final Depth (ft.)
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

Hnu	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
							See log of OW-30B

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date
Project Industri-Plex Site
Client Golder Associates
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Logged By L. McTiernan
Well No. ATB-18
Loc. Woburn, Mass.
M.P. Elevation 72.5
Drilling Started 4/24/90 Ended 4/24/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 26.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0		1.0	0-2	3,4,4,5	SW	0	Dark brown fine(+) to medium SAND, trace coarse sand, trace fine to coarse gravel.
0		1.4	5-7'	2,2,2,2	SW	5	Dark brown fine to medium SAND, trace coarse gravel, trace organic material; moist.
0		1.9	10-12'	7,10,10,11	SW ML SW	10	Top 0.3': Black fine SAND trace organic material; Middle 1.2': Tan SILT; iron stained. Bottom: Orange-tan fine SAND; well sorted.
0		0.9	15-16'	10,60,50/1"	SP	15	Brown fine to coarse SAND some fine gravel, trace silt. Duger refusal @ 17.0'(Bedrock)
						20	
		4.3	22-26.5'	96%recovery		25	Green-grey medium grain gabbro accessory minerals of pyrite and epidate. Oblique fractures in rock filled with sand or calcite.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 7/3/90
Project Industri-Plex Site
Client Golder Associates
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Logged By B. Thomas
Well No. ATB-19
Loc. Woburn, Mass
M.P. Elevation 93.53
Drilling Started 6/27/90 Ended 6/27/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 21'
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		0.7	1-3'	12,18,15,11	SP	0	Top 0.1': Grey coarse gravel (crushed Gabbro). Bottom 0.6: Brown fine medium SAND some coarse gravel, little silt, (fill
0.0		0.8	4.5-6.5'	6,14,24,45	SP	5	Dark brown to brown fine to coarse sand and coarse gravel. Sharp angular gravel; moist (fill). cuttings: light brown medium coarse sand and coarse gravel, little cobble (fill).
		NR	10-12'	38,100/1"		10	No recovery; pushed a cobble.
0.0		0.9	15-17'	79,45,19,18	GP	15	Grey coarse GRAVEL, little medium sand; gravel is fractured bedrock Auger refusal @17' (bedrock). Green-grey medium grain Gabbro. 2 fractures horizontal fracture @ 19.5' oblique fracture @20'; both fractures filled with calcite. Note: Petroleum hydrocarbon sheen and odor detected on drill rods.
						20	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 7/3/90
Project Industri-Plex Site
Client Golder Associates
Page 1 Of 2
Logged By H. Ernst
Well No. ATB-20
Loc. Woburn, Mass
M.P. Elevation 80.12
Drilling Started 6/28/90 Ended 6/28/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 8"
Final Depth (ft.) 40.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		1.4	0-2'	3,9,9,9	SW	0	Top 0.3:Dark brown organic SILT. Bottom 1.1': Light brown coarse (+) to medium SAND, little gravel.
0.0		1.0'	4-6'	3,3,5,6	SW	5	Top 0.6': Light brown coarse (+) to medium SAND, trace gravel. Bottom 0.4': Coarse SAND, trace gravel coarsening downward.
0.0		0.9	10-12'	4,5,8,20	SW	10	Brown medium to coarse (+) SAND some fine gravel; coarsening downward.
0.0		1.1	15-17'	6,9,7,8	SP	15	Brown coarse sand and fine gravel; uniform; moist.
0.0		0.4	20-22'	13,34,27,12	SW	20	Brown coarse SAND and fine gravel; uniform; pushed a cobble.
0.0		0.4	25-27'	10,8,9,10	SW	25	Light brown medium (+) to fine SAND; wet; pushed a cobble.
0.0		1.4	30-32'	5,7,18,15	SW	30	Brown, black, orange to grey fine SAND; sand is oxidized; wet.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 7/3/90
Project Industri-Plex Site
Client Golder Associates
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Logged By H. Ernst
Well No. ATB-20
Loc. Woburn, Mass
M.P. Elevation 80.12
Drilling Started 6/28/90 Ended 6/28/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 40.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		0.5	35-36'	4,24	SP	35	Grey fine (+) to medium SAND and coarse grave; little silt, and gravel appears to be fractured bedrock. Auger refusal 36'.
		1.1	37.5-40.5	37% recovery		40	Green-grey medium grain Gabbro, weathered, severely fractured, oblique and vertical fractures some sand seams.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 7/3/90
Project Industri-Plex Site
Client Golder Associates
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Logged By H. Ernst
Well No. ATB-21
Loc. Woburn, Mass
M.P. Elevation 94.22
Drilling Started 6/29/90 Ended 7/2/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Aiger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 20.5
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		0.85	0-2'	12,20,31,25	SP SP	0	Top 0.4': Organic SILT Bottom 0.45'; Brown coarse gravel and medium to coarse (+) sand. Cuttings: Brown medium to coarse sand and cobbles (fill).
0.0		1.0	4.5-6.5'	7,7,4,6	SW SP	5	Light brown medium to coarse (+) SAND, little fine gravel; coarsening downward. cuttings: Brown medium to coarse SAND, and cobbles.
0.0		0.9	9-11'	8,5,6,7	SW	10	Top 0.5': same as above. Bottom : Brown medium (+) to fine SAND, moist.
0.0		0.8	14-16'	15,43,100/3"	SW	15	Top 0.3': Brown medium to coarse (+) SAND, some fine gravel; uniform. Bottom 0.5': Green grey medium sand and fractured rock. Auger refusal @16.0'. Grey coarse grain low quartz diorite trace epidote, trace magnetive, weathered; severely fractured oblique fractures filled with sand.
		0.9	16.5-20.5	22% recovery	SP	20	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 5/30/90
Project Industri-Plex Site PDI
Client Golder Associates
Page 1 Of 2
Logged By H. Hollister
Well No. OW-23
Loc. Woburn, Mass
M.P. Elevation 68.54
Drilling Started 5/16/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 10"
Final Depth (ft.) 27'
Casing Diam. (in.) 4"
Casing Length (ft.) 20'
Screen Setting (ft.) 17-27'
Screen Slot & Type .010" PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
3.5		0.8	0-2'	1,1,1,1	SP	0	Dark brown medium(+) to coarse SAND, little fine gravel, organic material. Cuttings: Dark brown medium to coarse SAND, some fine gravel; moist.
0.0		0.8	5-7'	1,2,1,1	SP	5	Dark brown fine to coarse SAND, little fine gravel, trace silt organic material.
0.0		1.2	10-12'	1,1,1,1	PT	10	Dark brown fine to medium organic SAND, trace fine gravel some PEAT throughout Sample.
0.0		1.2	15-17'	3,9,12,12	PT SW	15	Top 0.5': Dark brown PEAT. Bottom: Grey fine(+) to medium SAND, little organic material, trace coarse gravel.
0.0		1.8	20-22'	8,10,10,11	SMu^{d} SW	20	Top 1.65': Light brown fine SAND, some silt, trace coarse sand, iron stained laminated. Bottom 0.1': Light brown medium to coarse(+) SAND, Little fine gravel.
0.0		1.1	25-27'	30,45,33,20	SW GWu^{d}	25	Top 0.5': Brown medium to coarse SAND. Bottom: Brown medium to coarse SAND and fine(+) to coarse gravel.
0.0		1.0	30-32'	27,24,22,20	SP	30	Brown Medium to coarse(+) SAND, some fine gravel, trace coarse gravel; iron stained.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 5/30/90
Project Industri-Plex PDI
Client Golder Associates
Page 2 Of 2
Logged By H. Hollister
Well No. OW-23
Loc. Woburn, Mass
M.P. Elevation 68.54
Drilling Started 5/16/90 Ended 5/17/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 10"
Final Depth (ft.) 27'
Casing Diam. (in.) 4
Casing Length (ft.) 20'
Screen Setting (ft.) 17-27'
Screen Slot & Type .010" PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

P ID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
5 .2		0.5	35-36'	32,20	SP	35	Grey fine to coarse SAND and fine gravel, little coarse gravel. Auger refusal @ 37.6'
		2.2	38.5-41.5'	73% recovery	Bedrock	40	Green-grey granodiorite some quartsome calcite veins, Oblique andvertical fractures

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 4/30/90
Project Industri plex PDI
Client Golder Associates
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Logged By L. McTiernan
Well No. OW-24a
Loc. Woburn, M.A.
M.P. Elevation 57.47
Drilling Started 4/30/90 Ended 4/30/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 10"
Final Depth (ft.) 24.97
Casing Diam. (in.) 4"
Casing Length (ft.) 14.87
Screen Setting (ft.) 14.87-24.97
Screen Slot & Type 10 Slot PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type
Hammer lb.
Fall in.

DEVELOPMENT

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
						See log of OW-24b

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 4/30/90
Project Industri-Plex PDI
Client Golder Associates
Page 1 of
Logged By L. McTiernan
Well No. OW-24b
Loc. Woburn, M.A.
M.P. Elevation 57.26'
Drilling Started 4/25/90 Ended 4/27/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 10"
Final Depth (ft.) 59.65
Casing Diam. (in.) 4"
Casing Length (ft.) 49.50-59.65
Screen Setting (ft.) 10 Slot PVC
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
9.1	1	0.8'	0-2'	1,2,6,12	SP		Light dark brown, fine to coarse SAND, little fine to coarse Gravel, trace organic materials. (fill).
7.8	2	1.4'	5-7'	10,20,18,18	SP	5	Light brown fine(+) to coarse SAND, trace fine gravel. Moist at bottom.
6.2	3	2.0'	10-12'	6,12,13,14	SP	10	Gray fine to coarse SAND, some fine Gravel, coarsening downwards. Wet.
--	4	1.35	15-17'	10,12,12,15	SP SW SP	15	0.-0.2' Brown fine to coarse SAND, trace fine Gravel. 0.2-1.2' Gray-brown fine SAND, laminated orange & black 1.2-1.35' Gray-brown to orange fine Gravel.
12.2	5	1.3'	20-22'	4,6,7,9	SW	20	Light brown fine to medium SAND; several orange laminae.
3.1	6	1.5	25-27'	5,10,12,21	SW	25	Light brown fine(+) to medium SAND.
3.6	7	1.7	30-32'	8,11,12,15	SW	30	Light brown fine to medium, trace silt; micacous sand.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y	Date 4/30/90	**WELL DATA**	**G W READINGS(1)**
Project Industri plex PDI		Hole Diam. (in.) 10"	Date / DTW MP(2) / Elev. W.T.
Client Golder Associates		Final Depth (ft.) 59.65	
Page 2 of 3		Casing Diam. (in.) 4"	
Logged By L. McTiernan		Casing Length (ft.) 49.50	
Well No. OW-24b		Screen Setting (ft.) 49.50-59.65	
Loc. Woburn, M.A.		Screen Slot & Type 10 Slot PVC	
M.P. Elevation 57.26		Well Status	
Drilling Started 4/25/90	Ended 4/27/90	**SAMPLER**	**DEVELOPMENT**
Driller D.L. Maher Company		Type Split spoon	
Type Of Rig Hollow Stem Auger		Hammer 140 lb.	
		Fall 30 in.	

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
3.1		1.4	35-37'	3,5,7,10	SW	35	Light brown fine SAND, very tight seam of silt and clay at 35.9'.
3.2		1.7	40-42'	5,6,8,14	SW	40	Top 1.3': Brown fine to medium SAND, coarsening doenward. Bottom 0.4': Brown to grey medium to coarse SAND and fine to coarse gravel; coarsening downward.
2.3		0.7	45-47'	7,19,13,10	GP	45	Grey-brown fine to coarse angular GRAVEL, some fine to coarse sand, trace silt.
2.4		1.6	50-52'	8,10,12,12	SMu[d] MH	50	Top 0.7': Brown fine SAND, some silt. Bottom: Grey SILT, little fine sand; tight.
2.2		1.3	55-57'	7,9,10,8	SMu[d]	55	Grey fine SAND and silt, trace black clay; tight.
2.0		2.0	60-62'	7,6,10,11	SMu[d]	60	Grey fine SAND, little silt. fining downward; moderately tight.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 4/30/90
Project Industri-Plex PDI
Client Golder Associates
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Logged By L. McTiernan
Well No. OW-24b
Loc. Woburn, M.A.
M.P. Elevation 57.26
Drilling Started 4/25/90 Ended 4/27/90
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 10"
Final Depth (ft.) 59.65
Casing Diam. (in.) 4"
Casing Length (ft.) 49.50
Screen Setting (ft.) 49.50-59.65
Screen Slot & Type 10 Slot PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		0.6	64-65.5	14,40,35	SW	65	Grey fine SAND, auger refusal @ 65.5'. (Bedrock).
-		3.5	69.5-73'	100%recovery		70	Green-grey coarse grain grano-diorite low quartz. Moderately fractured both vertical and oblique fractures, some sand in rock.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 5/24/90
Project Industri-Plex Site
Client Golder Associate
Page 1 Of 1
Logged By B. Thomas
Well No. OW-25a
Loc. Woburn, Mass
M.P. Elevation 66.00
Drilling Started 5/22/90 Ended 5/22/90
Driller D.L. Maher
Type Of Rig Dual Reverse Rotary

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 23.0
Casing Diam. (in.) 4"
Casing Length (ft.) 13.15
Screen Setting (ft.) 13.15-23.3
Screen Slot & Type .010" PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
						See log of OW-25b

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	16101
Date	5/19/90
Project	Industri-Plex Site
Client	Golder Associate
Page	1 of 2
Logged By	B. Thomas
Well No.	OW-25b
Loc.	Woburn, Mass
M.P. Elevation	65.34
Drilling Started	5/17/90
Ended	5/20/90
Driller	D.L. Maher
Type Of Rig	Dual Reverse Rotary

WELL DATA

Hole Diam. (in.)	8"
Final Depth (ft.)	40.3
Casing Diam. (in.)	4"
Casing Length (ft.)	29.8'
Screen Setting (ft.)	29.8-40.3
Screen Slot & Type	.010"PVC
Well Status	

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type	Split spoon
Hammer	140 lb.
Fall	10 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		0.8	0-2'	3,18,60/3"	SP	0	Brown fine to coarse SAND some fine to coarse gravel(fill).
							Cuttings 0-10': Brown coarse sand and cobbles(fill).
						5	
		NR	10-12'	7,11,11,12		10	No recovery.
0.0		0.7	13-15'	4,6,4,8	SW		Light brown fine to medium(+) SAND; iron stained lamination.
						15	
						20	
0.0		1.1	23-25'	3,10,2,5	SW	25	Grey-brown fine to coarse SAND, some fine gravel, trace silt; coarsening downward, wet.
						30	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 5/19/90
Project Industri-Plex Site
Client Golder Associates
Page 2 Of 2
Logged By B. Thomas
Well No. OW-25b
Loc. Woburn, Mass
M.P. Elevation 65.34
Drilling Started 5/17/90 Ended 5/20/90
Driller D.L. Maher
Type Of Rig Dual Reverse Rotary Rig

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 40.3
Casing Diam. (in.) 4"
Casing Length (ft.) 29.8
Screen Setting (ft.) 29.8-40.3
Screen Slot & Type 010" PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		1.0	33-35'	10,10,11,7	SW	35	Brown medium to coarse(+) SAND, little fine gravel; coarsening downward; well sorted.
						40	
0.0		0.4	43-45'	2,5,9,12	SP	45	Brown coarse SAND and fine gravel.
		2.8	47.5-50.5	93% recovery		50	Bedrock @ 47.4' Green-grey medium grain Granodiorite some oblique and horizontal fractures. Sand Seam @ 49.'

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date -
Project Industri plex PDI
Client Golder Associates
Page 1 Of 1
Logged By B. Thomas
Well No. OW-26a
Loc. Woburn, M.A.
M.P. Elevation 64.15
Drilling Started 5/11/90 Ended 5/11/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 12"
Final Depth (ft.) 23.20
Casing Diam. (in.) 4
Casing Length (ft.) 14.95'
Screen Setting (ft.) 13.05-23.20
Screen Slot & Type 10 Slot PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type
Hammer lb.
Fall in.

DEVELOPMENT

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
						See log of ATB-3

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 5/30/90
Project Industri Plex PDI
Client Golder Associates
Page 1 Of 1
Logged By B. Thomas
Well No. OW-26b
Loc. Woburn, M.A.
M.P. Elevation 63.8
Drilling Started 5/24/90 Ended 5/24/90
Driller D.L. Maher Company
Type Of Rig Dual Reverse Rotary

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 41.46'
Casing Diam. (in.) 4"
Casing Length (ft.) 33.61
Screen Setting (ft.) 31.31-41.46
Screen Slot & Type 10 Slot PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type
Hammer lb.
Fall in.

DEVELOPMENT

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
						See log of ATB-3.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 5/8/90
Project Industri-Plex Site
Client Golder Associate
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Logged By B. Thomas
Well No. OW-27a
Loc. Woburn, Mass
M.P. Elevation 70.84
Drilling Started 5/3/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 12"
Final Depth (ft.) 39.6
Casing Diam. (in.) 4"
Casing Length (ft.) 32.0
Screen Setting (ft.) 29.6-39.6
Screen Slot & Type .010" PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type
Hammer lb.
Fall in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
							See log of OW-27b.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 5/8/90
Project Industri-Plex Site
Client Golder Associates
Page 1 of 4
Logged By L. McTiernan
Well No. OW-27b
Loc. Woburn, Mass
M.P. Elevation 70.52
Drilling Started 5/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 94.57
Casing Diam. (in.) 4"
Casing Length (ft.) 85.85
Screen Setting (ft.) 84.42-94.57
Screen Slot & Type .010" PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		0.9	0-2.0	13,17,50/3"	SP	0	Grey to brown fine to coarse SAND, some fine to coarse gravel(fill).
2.6		1.0	5-7'	8,5,6,32	SP	5	Grey to brown fine to coarse SAND and fine to coarse gravel, some brick and cement fragments. (fill).
3.4		0.6	10-12'	1,2,1,2	SP	10	Grey to brown fine to coarse SAND, some fine to coarse gravel; moist(fill).
0.3		1.45	15-17'	3,6,6,5	SW	15	Light brown fine to medium SAND, trace silt, trace fine gravel, wet.
0.7		1.65	20-22'	4,4,4,4	SW	20	Grey fine SAND, trace silt; red and orange laminae, moderatly stiff.
0.9		1.4	25-24'	4,4,6,7	SW	25	Brown fine to medium SAND trace silt, trace fine gravel; fining downward.
1.0		1.3	30-32'	2,3,7,10	SW	30	Brown fine to medium SAND fine sand seam @ 30.6-30.8' Iron stained throughout.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 5/8/90
Project Industri plex Site PDI
Client Golder Associates
Page 2 Of 4
Logged By L. McTiernan
Well No. OW-27b
Loc. Woburn MA
M.P. Elevation 70.52
Drilling Started 5/3/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 94.57
Casing Diam. (in.) 4"
Casing Length (ft.) 85.85
Screen Setting (ft.) 84.42-94.57
Screen Slot & Type .010" PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
		N.R	35-37'	13,20,40/3'		35	No recovery.
0.5		1.25	40-42'	7,2,5,11	SW	40	Light brown fine to medium (+) SAND, trace silt; iron stained, laminae.
		1.35	45-47'	5,5,9,11	SW	45	Gray-brown fine to medium (+) SAND. trace silt; fining downward.
1.3		1.4	50-52'	4,9,10,15	SW	50	Brown fine to medium (+) SAND, moderately tight.
0.0		1.0	55-57'	3,6,4,2	SW	55	Brown fine-medium SAND, little silt, little gray clay; well sorted; tight. Auger refusal @57.0' Note: Dual reverse rotary rig used from 57' to bottom of boring.
0.0		1.5	59-61'	4,2,3,6	SW	60	Brown to gray fine-medium SAND, little silt; well sorted.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 5/8/90
Project Industri-Plex Site
Client Golder Associates
Page 3 of 4
Logged By L. McTiernan
Well No. OW-27B
Loc. Woburn, Mass
M.P. Elevation 70.52
Drilling Started 5/3/90 Ended
Driller D.L. Maher
Type Of Rig Dual Reverse Rotary Rig

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 94.57
Casing Diam. (in.) 4"
Casing Length (ft.) 85.85
Screen Setting (ft.) 84.42-94.57
Screen Slot & Type .010"PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
						65	
0.0		1.6	69-71'		MH	70	Gray SILT, some fine (+) sand trace clay.
						75	
0.0		0.5	79-81'	1,1,2,2	MH	80	Gray SILT, some fine (+) sand trace clay.
						85	
0.0		1.8	89-91'	1,2,2,3	ML	90	Gray SILT and fine sand.
						95	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 5/8/90
Project Industri-Plex Site
Client Golder Associates
Page 4 Of 4
Logged By L. McTiernan
Well No. OW-27B
Loc. Woburn, Mass
M.P. Elevation 70.52
Drilling Started 5/3/90 Ended
Driller D.L. Maher
Type Of Rig Dual Reverse Rotary

WELL DATA

Hole Diam. (in.) 8"
Final Depth (ft.) 94.57
Casing Diam. (in.) 4"
Casing Length (ft.) 85.85'
Screen Setting (ft.) 84.42-94.57
Screen Slot & Type .010"PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		1.5	99-100'	1,1,1,2	ML	100	Gray SILT, fine sand.
						105	
						110	Difficult drilling @ 110' (Bedrock)
		1.3	115-118'	43%recovery		115	Gray-green fine grain Gabbro trace pyrite, plagioclase vein @116'. Oblique and horizontal fractures throughout core, some sandseams; weathered.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
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GEOLOGIC LOG

Study No. 16101Y Date 5/30/90
Project Industri-Plex PDI
Client Golder Associates
Page 1 Of 1
Logged By H. Hollister
Well No. OW-29
Loc. Woburn, M.A.
M.P. Elevation 62.0
Drilling Started 5/1/90 Ended 5/2/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 10"
Final Depth (ft.) 25.7'
Casing Diam. (in.) 4"
Casing Length (ft.) 13.55
Screen Setting (ft.) 15.55-25.7
Screen Slot & Type 10 Slot PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type
Hammer lb.
Fall in.

DEVELOPMENT

Pen.	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
							See Log of ATB-10

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	16101
Date	5/8/90
Project	Industri-Plex Site PDI
Client	Golder Associates
Page	1 of 3
Logged By	H. Hollister
Well No.	OW-30b
Loc.	Woburn, Mass
M.P. Elevation	65.60
Drilling Started	5/3/90
Ended	
Driller	D.L. Maher
Type Of Rig	Hollow Stem Auger

WELL DATA

Hole Diam. (in.)	10"
Final Depth (ft.)	60.33
Casing Diam. (in.)	4"
Casing Length (ft.)	52.13
Screen Setting (ft.)	50.13-60.33
Screen Slot & Type	.010 PVC
Well Status	

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER

Type	Split spoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
0.0		1.6	0-2.0	2,4,8,8	SW	0	Brown medium SAND, trace fine gravel, trace organic material.
0.0		1.9	5-7'	4,8,11,12	SW	5	Tan medium(+) to Coarse SAND, coarsening downward.
0.0		1.4	10-12'	7,10,12,14	SW	10	Light brown medium(+) to coarse SAND, Trace(-) fine gravel; wet.
1.2		1.15	15-17'	8,14,16,27	SW	15	Dark grey medium SAND, Black medium sand from 15.2 to 15.4 and 15.9-16.1
13.6		0.4	17.5-18	90/6"			Dark grey medium(+) to coarse SAND, some fine gravel.
8.6		0.7	20-22'	36,60,20,12	GMv d SW	20	Grey medium to coarse sand and fine to coarse gravel Bottom 0.2': grye fine to medium sand.
0.0		1.4	25-27'	8,12,21,33	SW	25	Grey-brown fine(+) to medium SAND, well sorted. Black Laminated sands.
0.0		2.0	30-32'	6,10,18,24	SW	30	Grey-brown fine(+) to medium SAND; well sorted; black laminated sand.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101	Date 5/8/90
Project	Industri-Plex Site PDI
Client	Golder Associates
Page 2	Of 3
Logged By	H. Hollister
Well No.	OW-30
Loc.	Woburn, Mass
M.P. Elevation	65.60
Drilling Started 5/3/90	Ended
Driller	D.L. Maher
Type Of Rig	Hollow Stem Auger

WELL DATA

Hole Diam. (in.)	10"
Final Depth (ft.)	60.37
Casing Diam. (in.)	4"
Casing Length (ft.)	52.13
Screen Setting (ft.)	50.13-60.33
Screen Slot & Type	.010" PVC
Well Status	

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type	Split spoon
Hammer	140 lb.
Fall	30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
1.6		1.4	35-37'	14,16,26,33	SW	35	Grey to light brown fine(+) to medium SAND, trace silt stiff; folded.
0.0		2.0	40-42'	14,40,65,7	SW	40	Light brown fine(+) to medium SAND, fining downward, iron staining.
0.0		1.0	45-47'	17,20,26,44	SMu[d]	45	Light brown fine SAND, trace silt, grey silt @ 45.5 folded.
0.0		1.6	50-52'	29,50,60,80	SW	50	Light brown fine SAND trace fine gravel; stiff.
0.0		1.6	55-57'	14,22,35,45	SW	55	Light brown fine(+) to medium SAND, trace fine gravel, laminated grey sands iron stained.
1.4		N.R	60-61'	20,24,28, 100/6		60	No recovery, heaving Sands.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101 Date 5/8/90
Project Industri-Plex Site PDI
Client Golder Associates
Page 3 Of 3
Logged By H. Hollister
Well No. OW-30b
Loc. Woburn, Mass
M.P. Elevation 65.60
Drilling Started 5/3/90 Ended
Driller D.L. Maher
Type Of Rig Hollow Stem Auger

WELL DATA
Hole Diam. (in.) 10"
Final Depth (ft.) 58'
Casing Diam. (in.) 4"
Casing Length (ft.) 52.13
Screen Setting (ft.) 50.13-60.33
Screen Slot & Type .010" PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.

SAMPLER
Type Split spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

PID	SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
3.0		1.0	65-67	38,27,37,55	SMd	65	Light brown fine SAND, some silt.
							Difficult drilling @ 68'
					Bedrock		
		1.0	70.8-74.8	25%recovery		70	Grey green Granodiorite weathered, badly fractured with sand and silt seams.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No. 16101Y Date 5/30/90
Project Industri plex PDI
Client Golder Associates
Page 1 of 1
Logged By B. Thomas
Well No. OW-33a
Loc. Woburn, M.A.
M.P. Elevation
Drilling Started 4/23/90 Ended 4/23/90
Driller D.L. Maher Company
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 10"
Final Depth (ft.) 44.4'
Casing Diam. (in.) 4"
Casing Length (ft.) 36.64
Screen Setting (ft.) 34.29-44.40
Screen Slot & Type 10 Slot PVC
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type
Hammer lb.
Fall in.

DEVELOPMENT

SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
						See log of ATB-15

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

GEOLOGIC LOG

Study No.	16101
Date	5/9/90
Project	Industri-Plex Site PDI
Client	Golder Associates
Page	1 of 1
Logged By	H. Hollister
Well No.	OW-33b
Loc.	Woburn, Mass
M.P. Elevation	56.66
Drilling Started	5/9/90
Ended	Same
Driller	D.L. Maher
Type Of Rig	Hollow Stem Auger

WELL DATA

Hole Diam. (in.)	12"
Final Depth (ft.)	83.81
Casing Diam. (in.)	4"
Casing Length (ft.)	76.4
Screen Setting (ft.)	73.4-83.8
Screen Slot & Type	10 Slot PVC
Well Status	

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type	
Hammer	lb.
Fall	in.

DEVELOPMENT

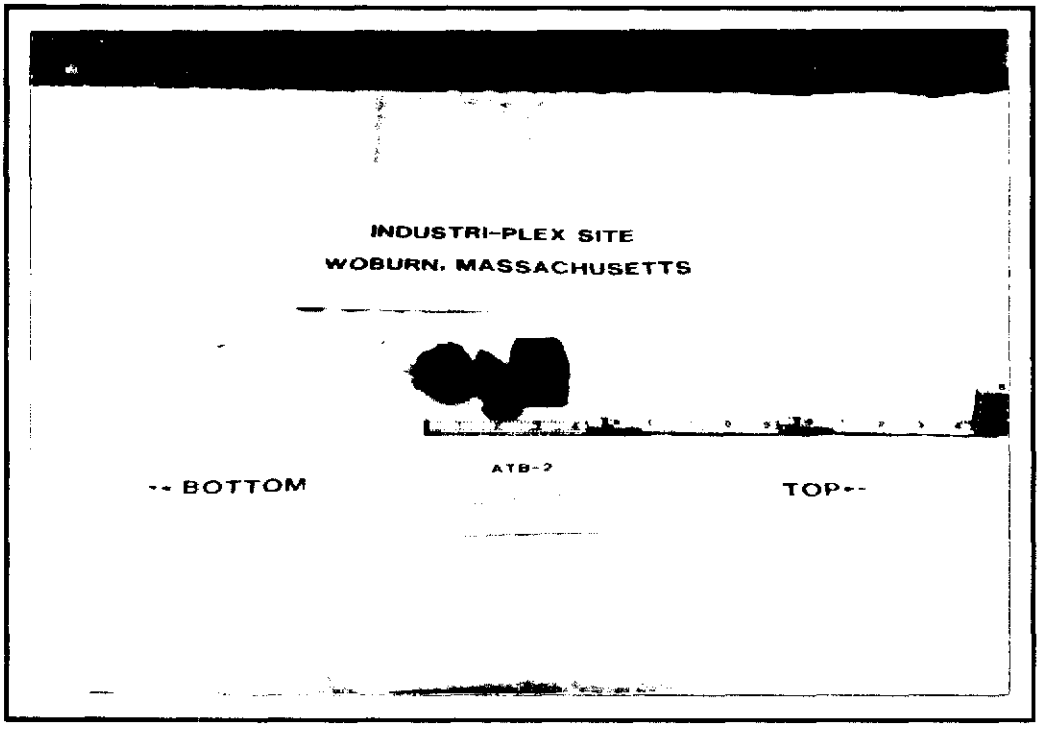
SAMPLE No.	Rec.	Depth (ft.)	Blows/6"	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
						See log of ATB-15

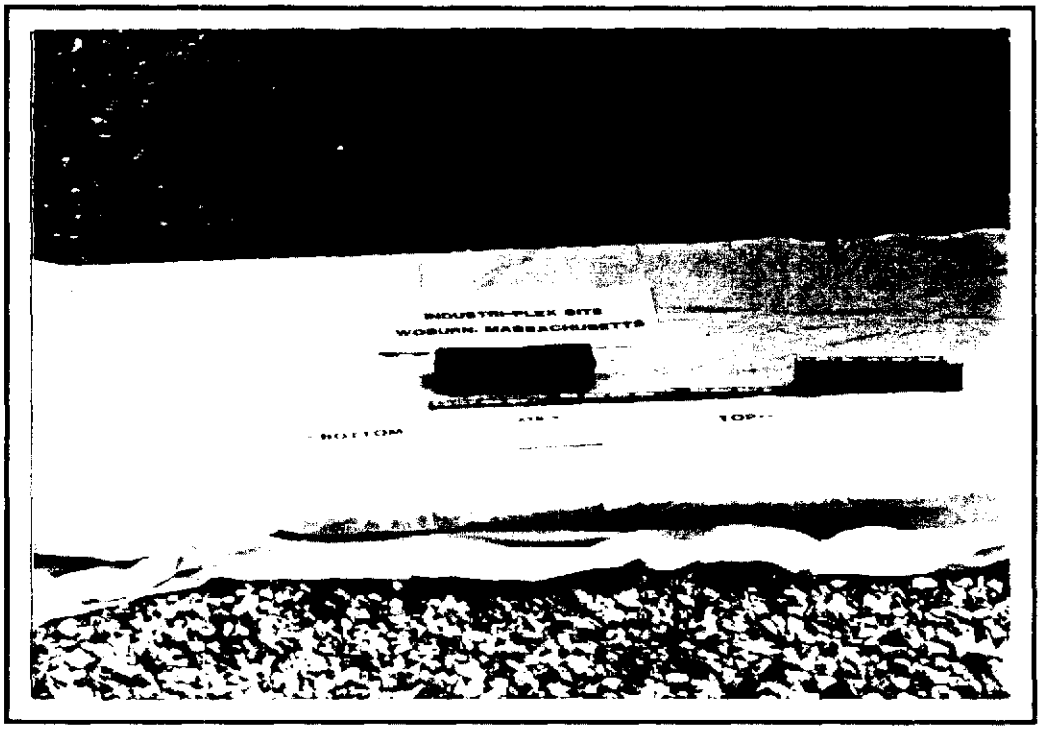
REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 4. Bedrock Core Photographs





Originals in color

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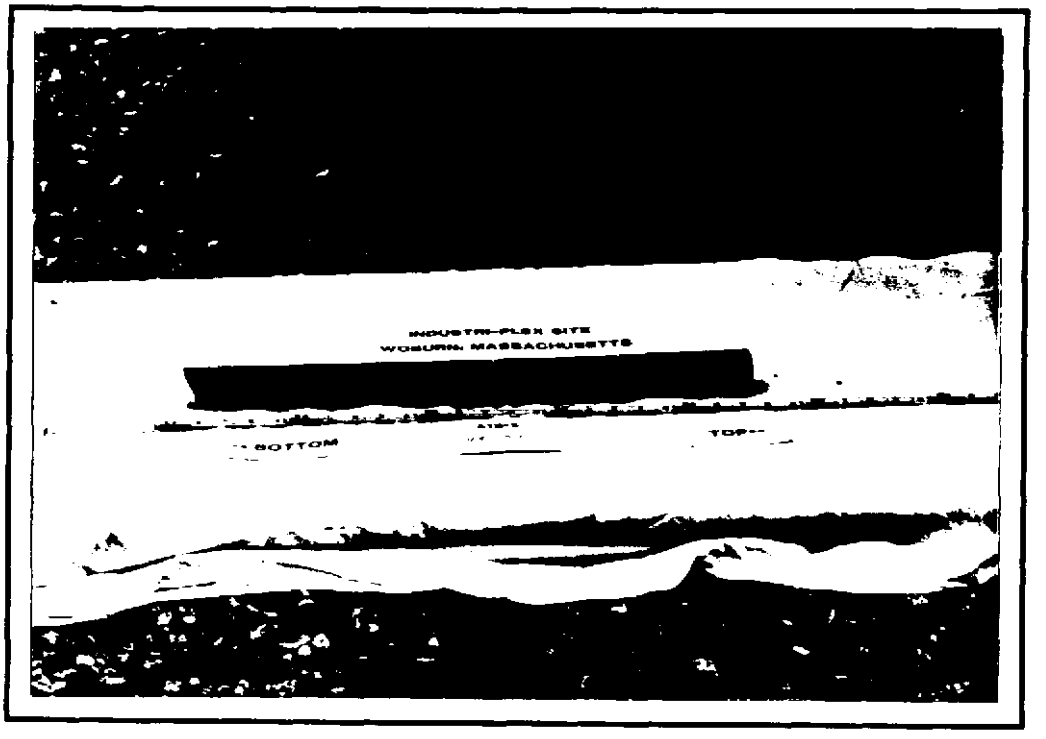
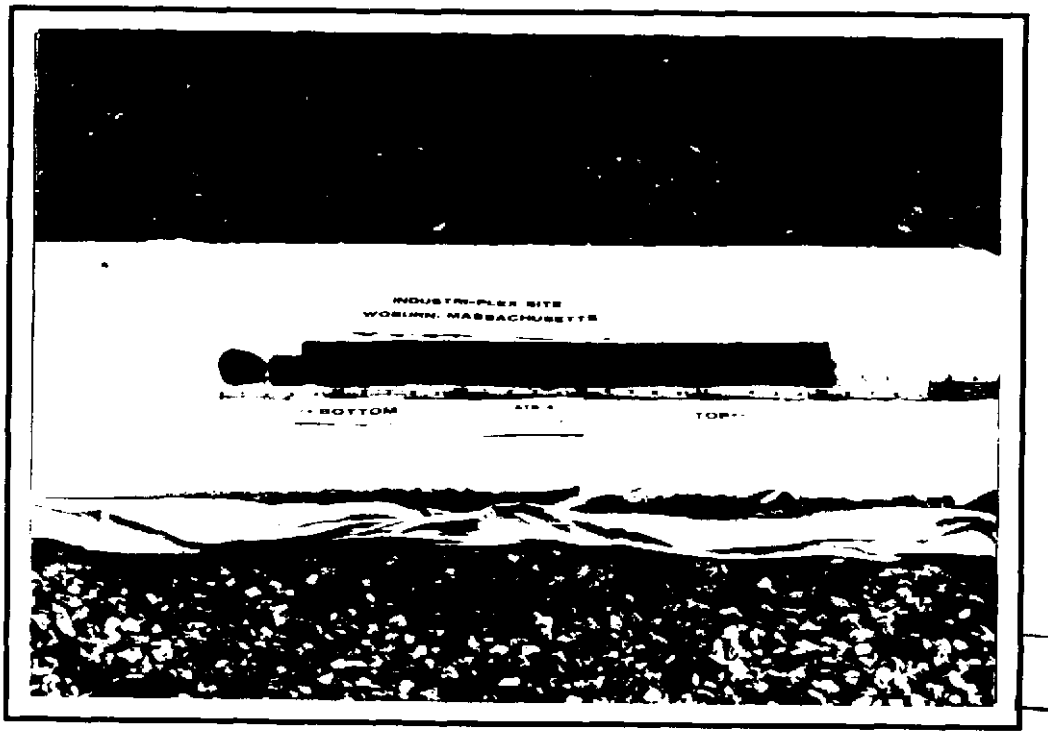
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*





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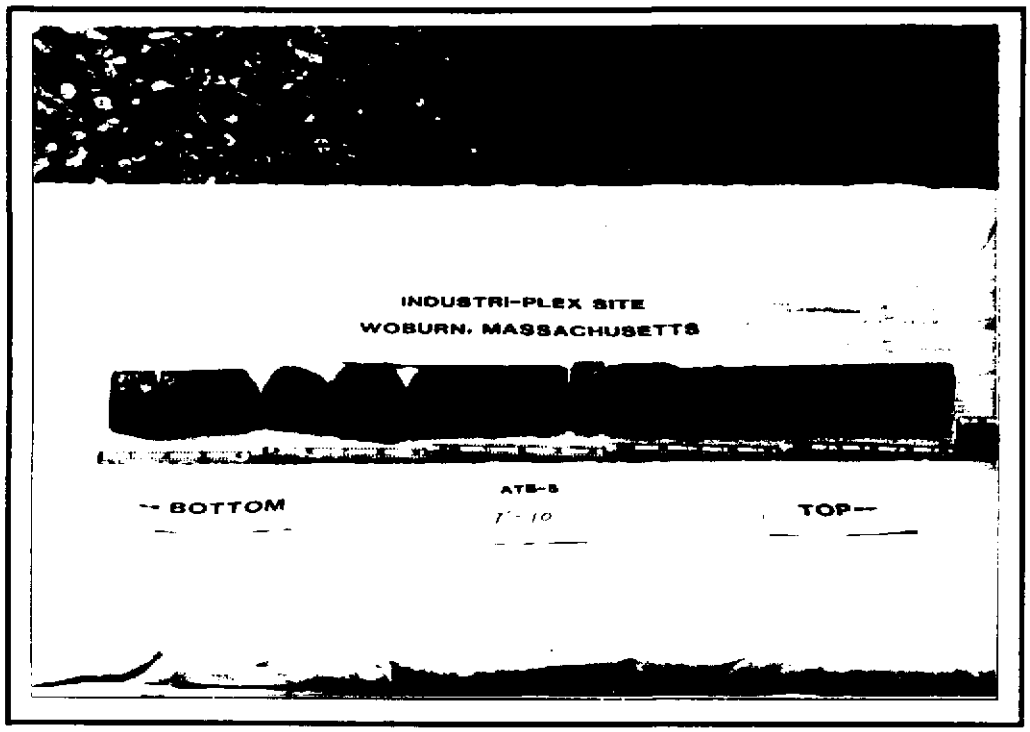
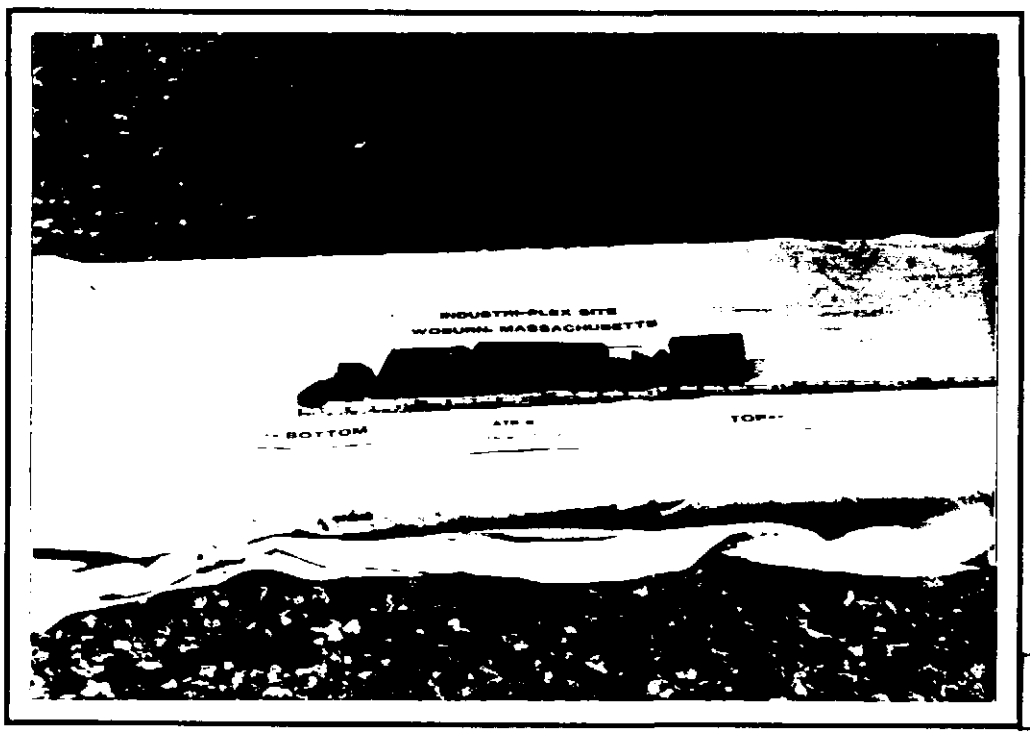
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*





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Prepared for:	Industri-Plex Site Remedial Trust
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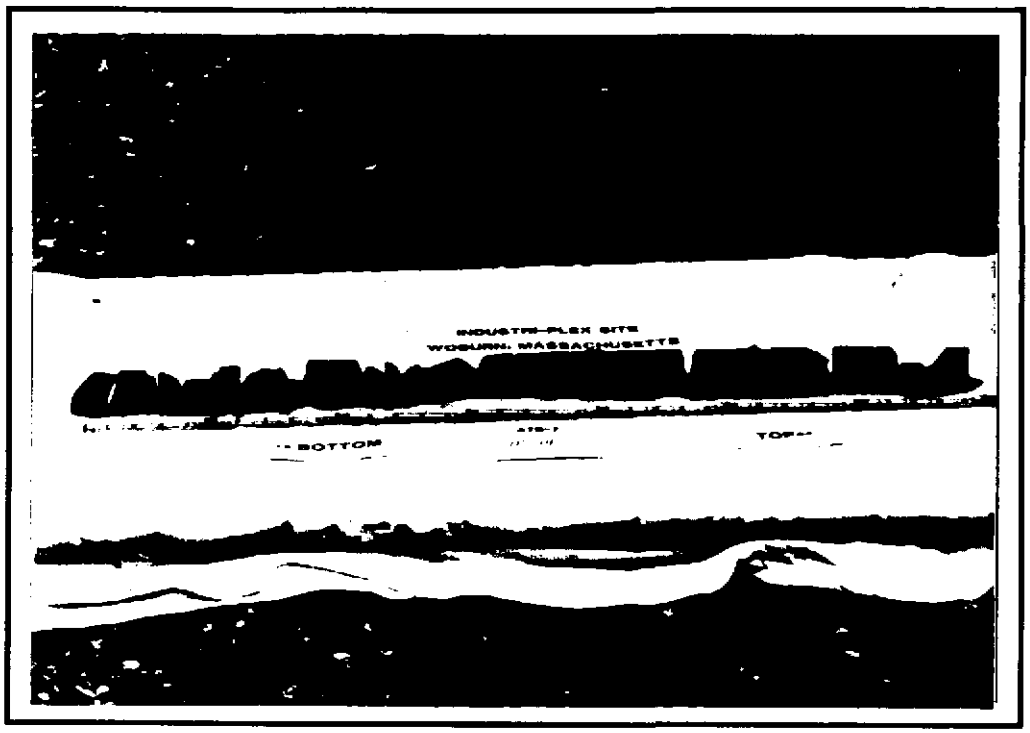

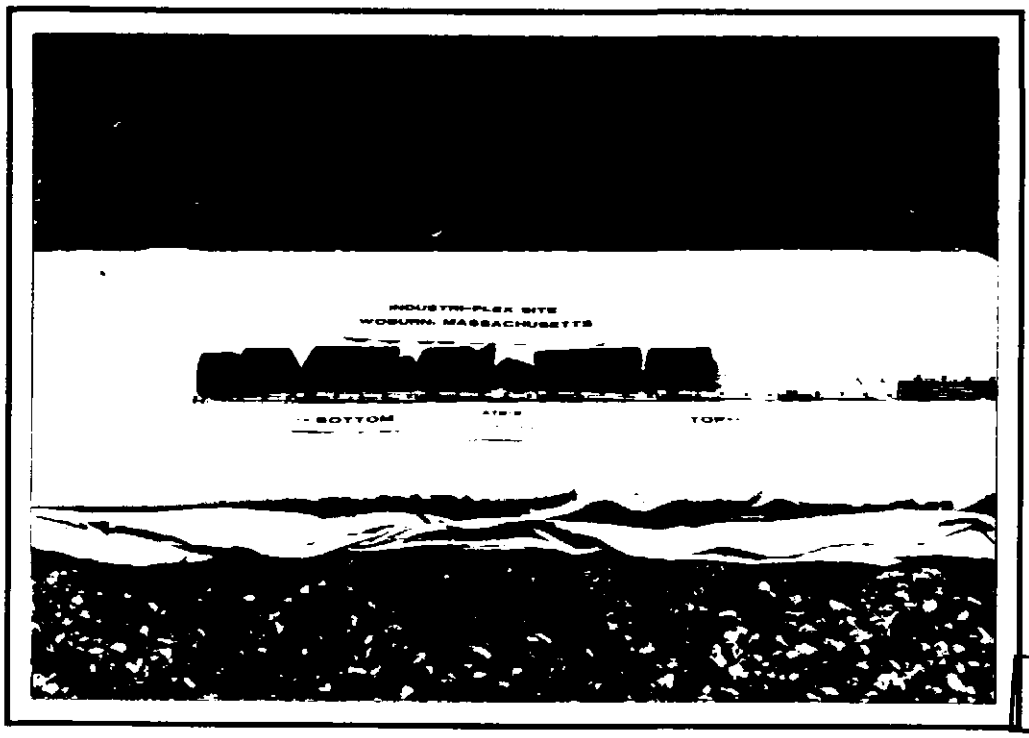

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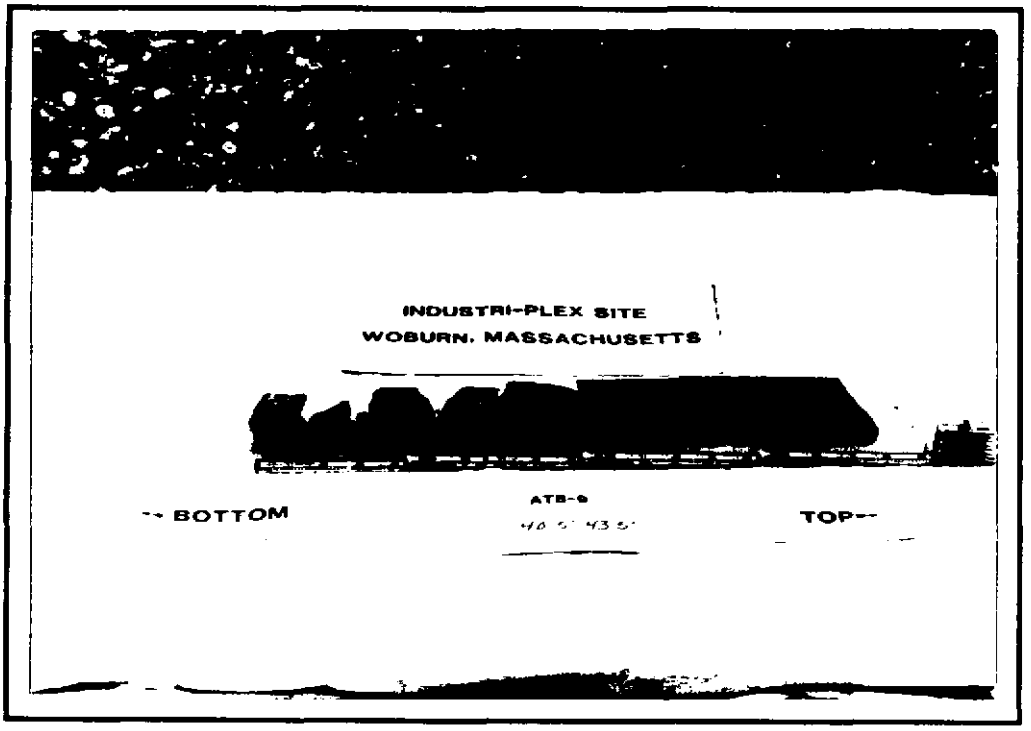
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*



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Prepared for:	Industri-Plex Site Remedial Trust
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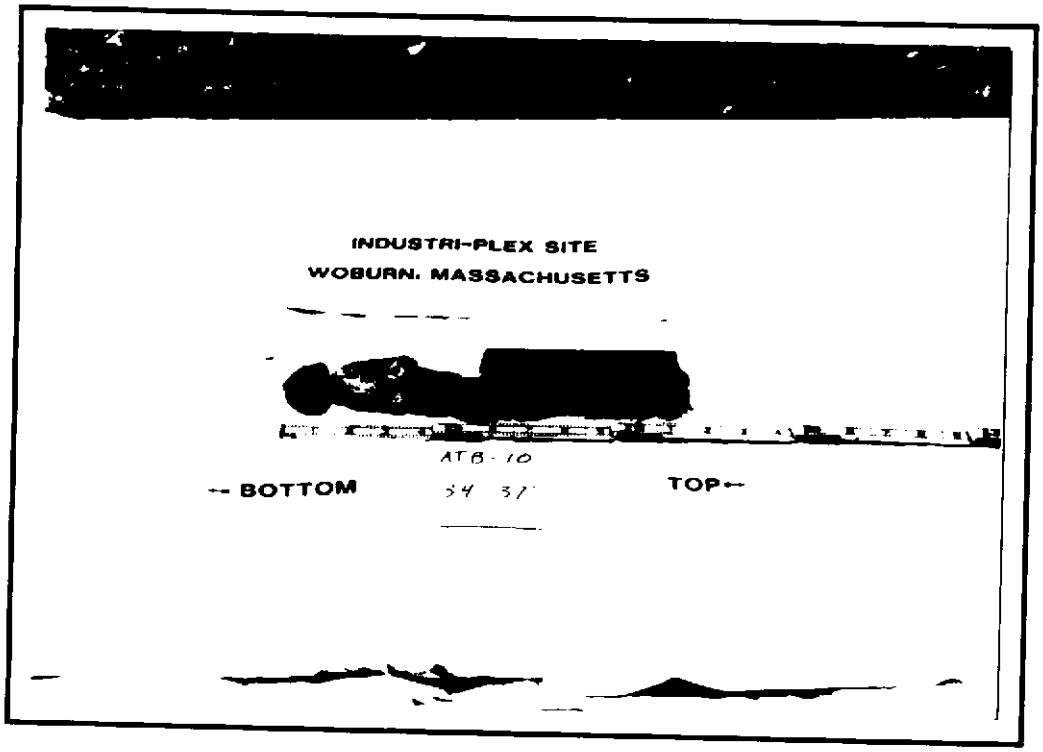

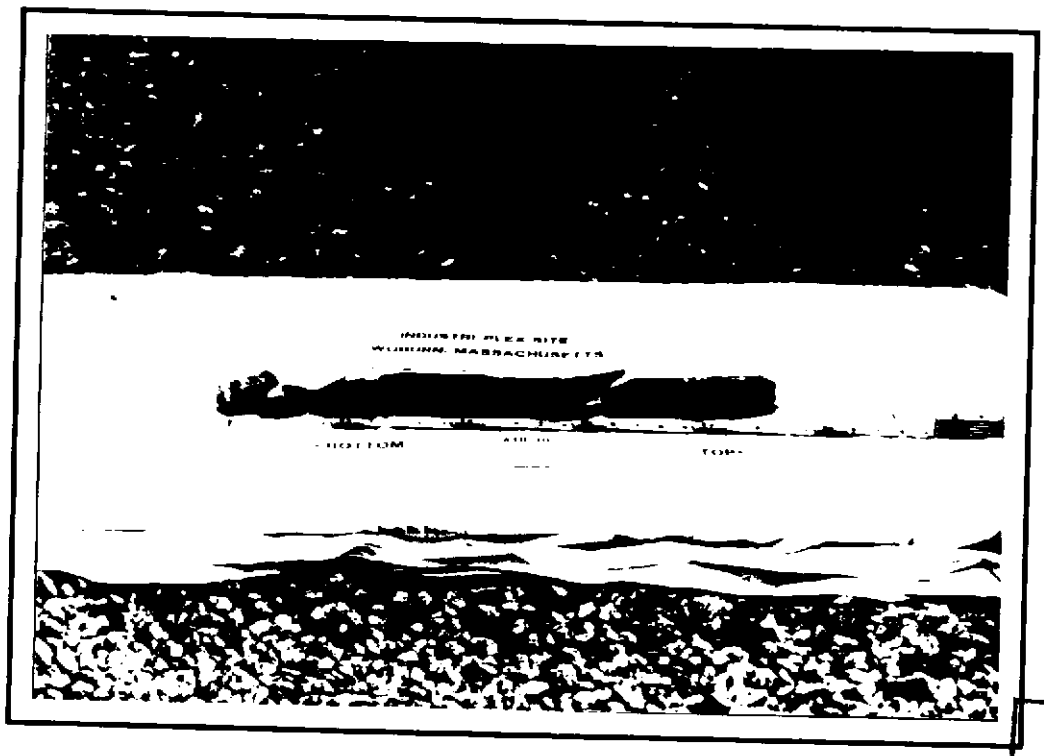

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Prepared for:	Industri-Plex Site Remedial Trust
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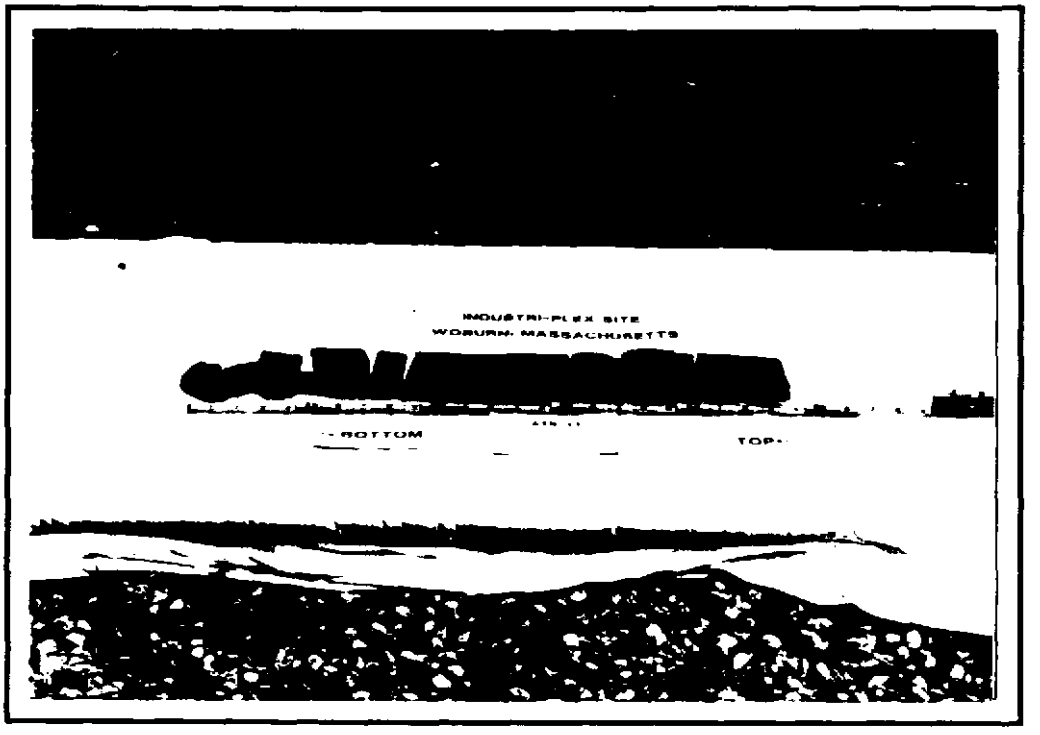

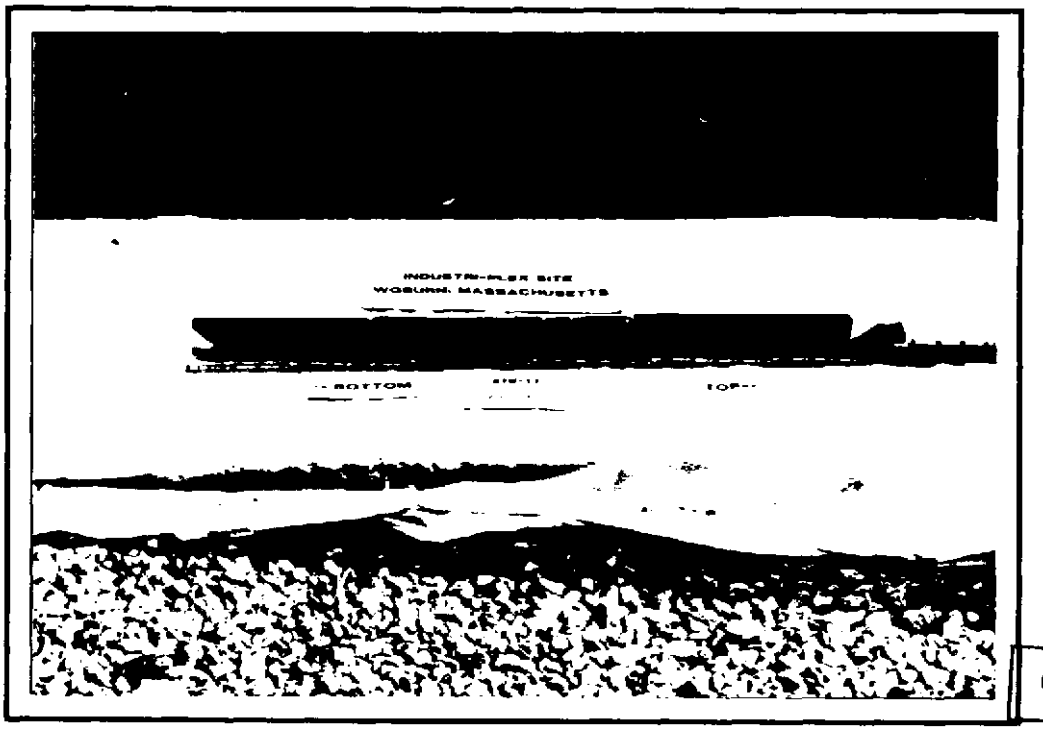

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Prepared for:	Industri-Plex Site Remedial Trust
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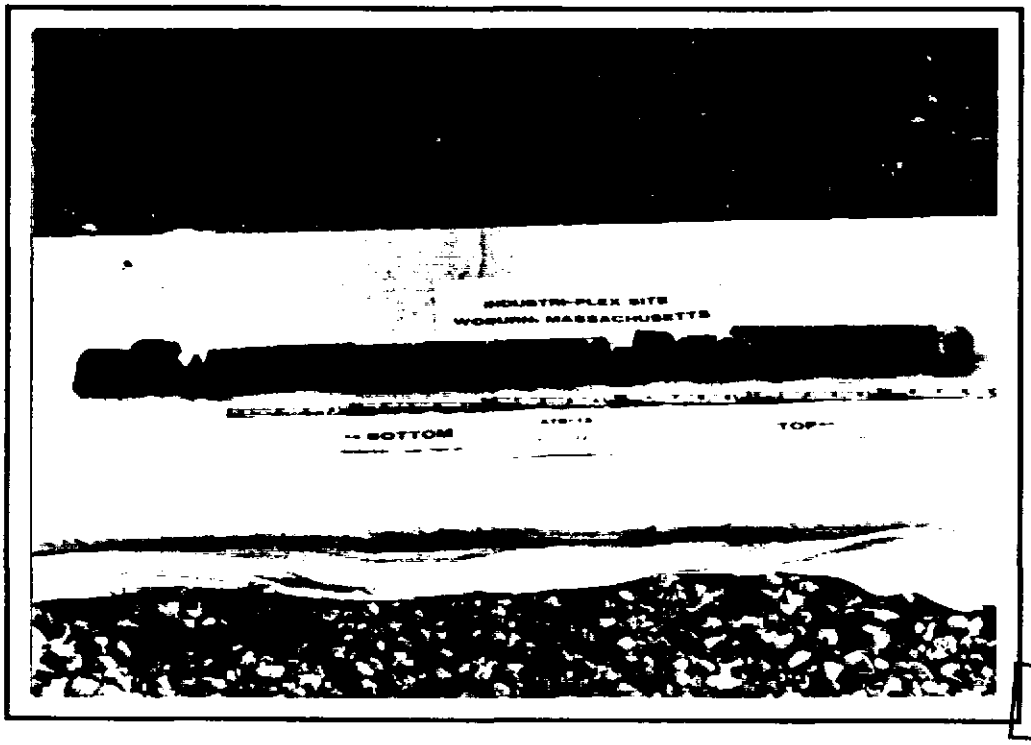

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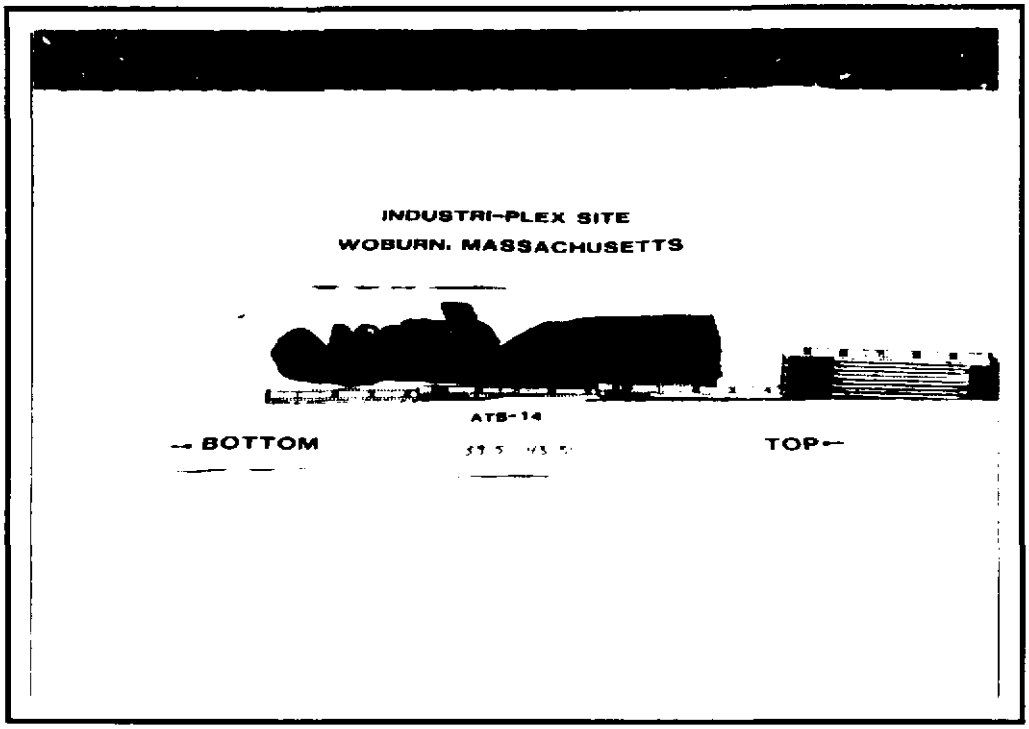
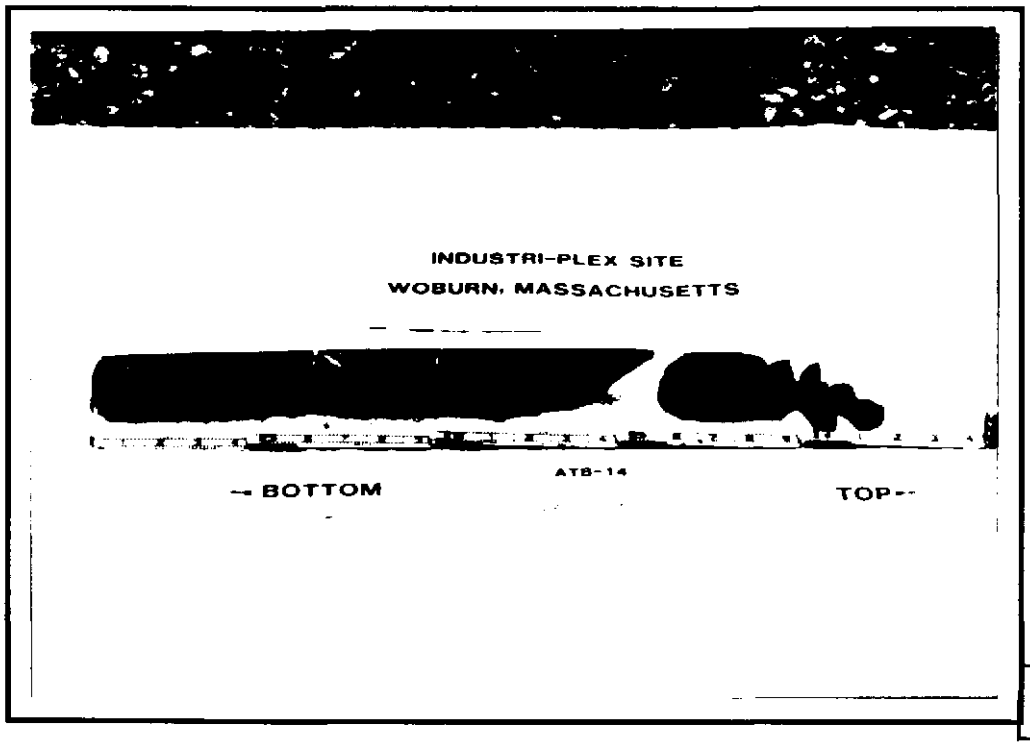
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*





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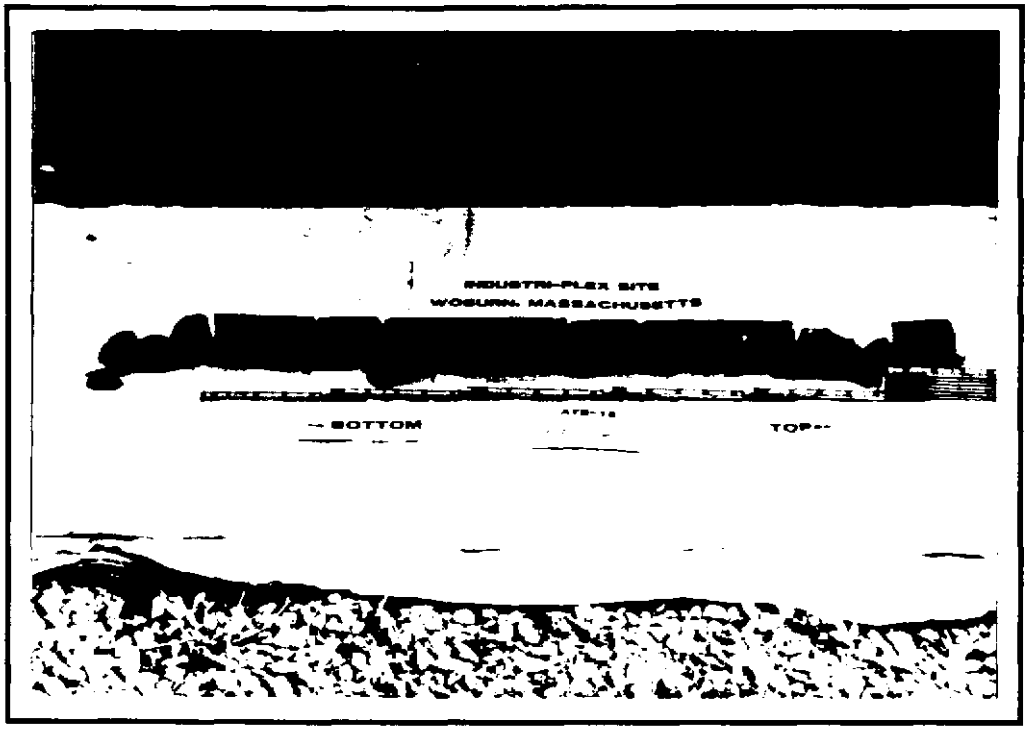
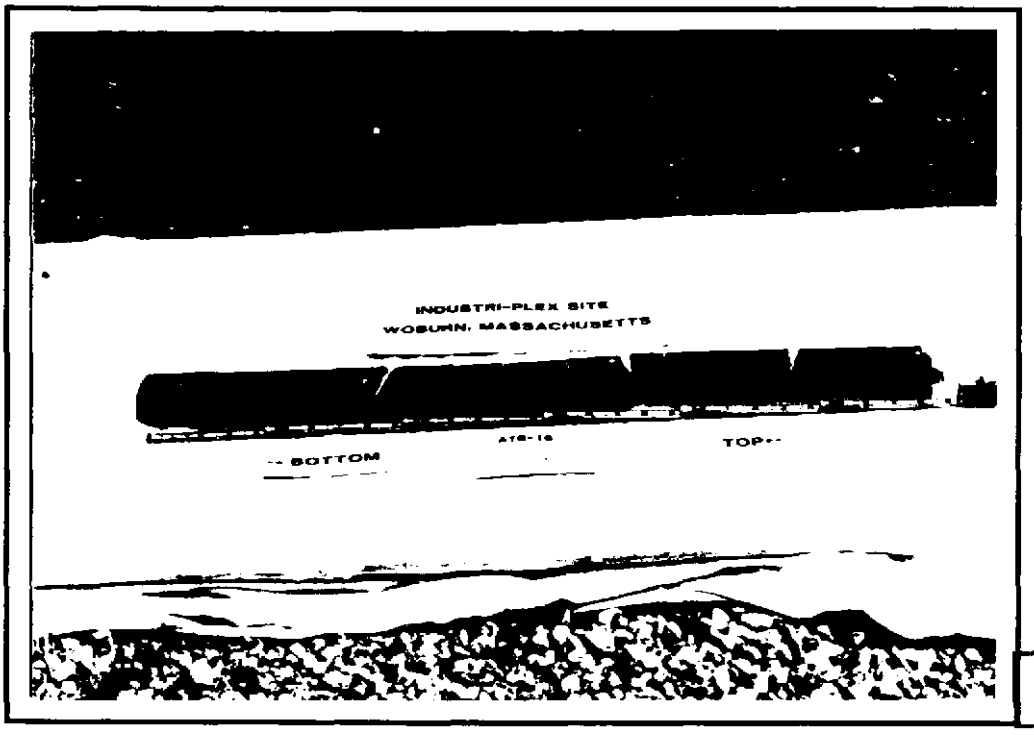
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*





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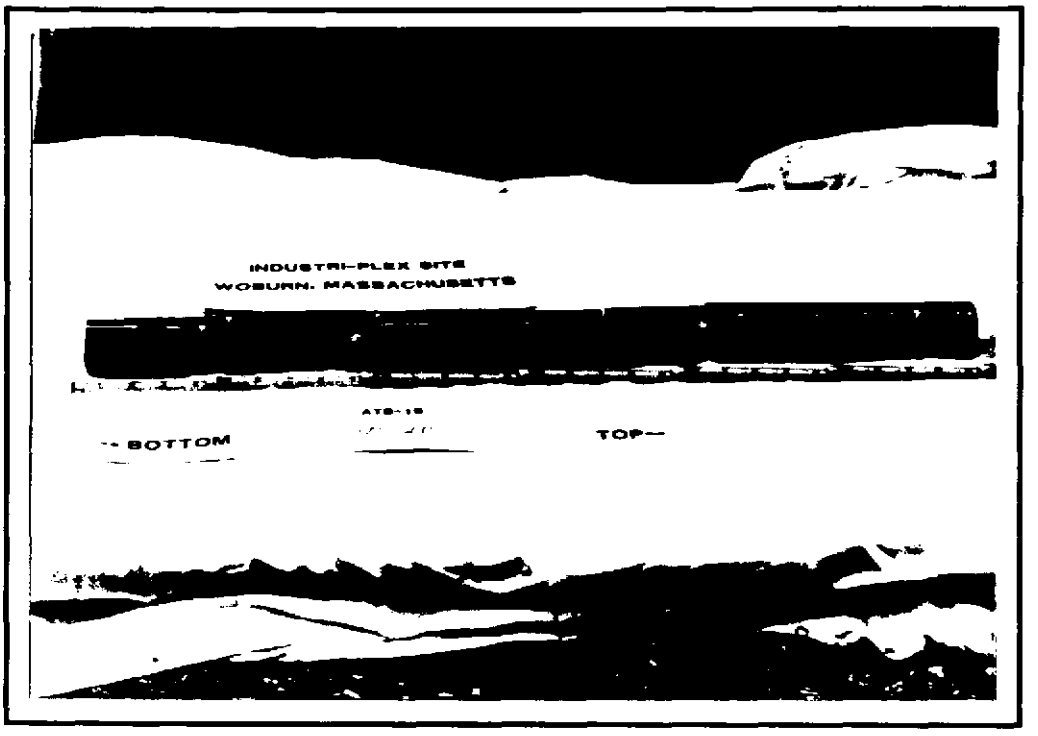
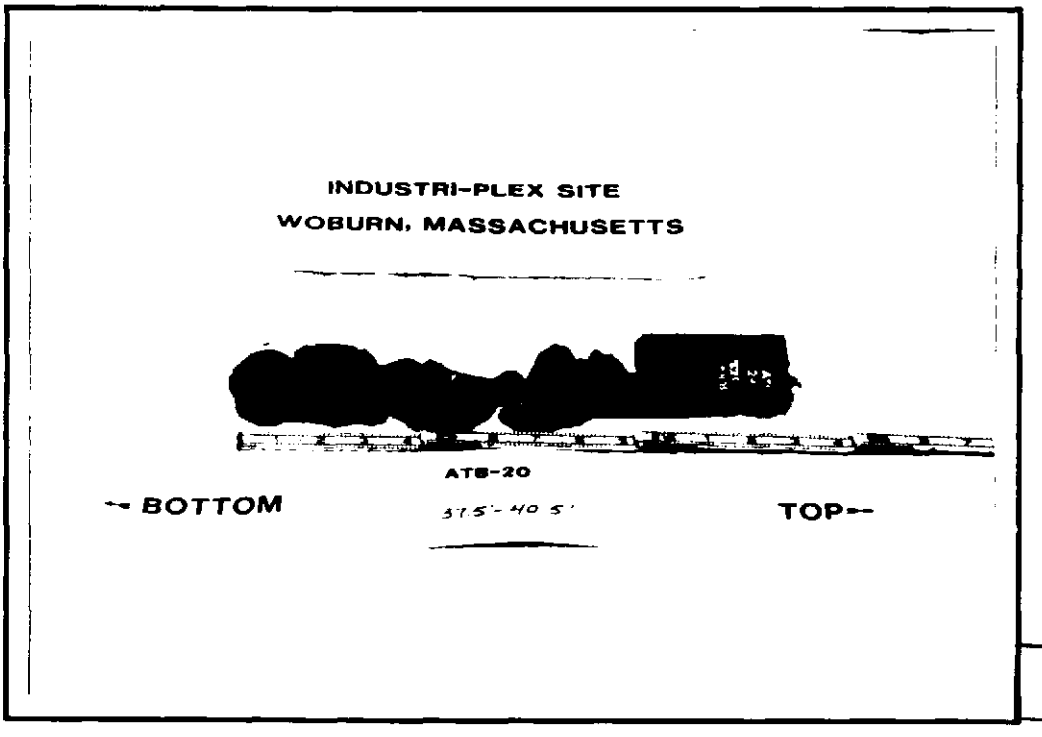
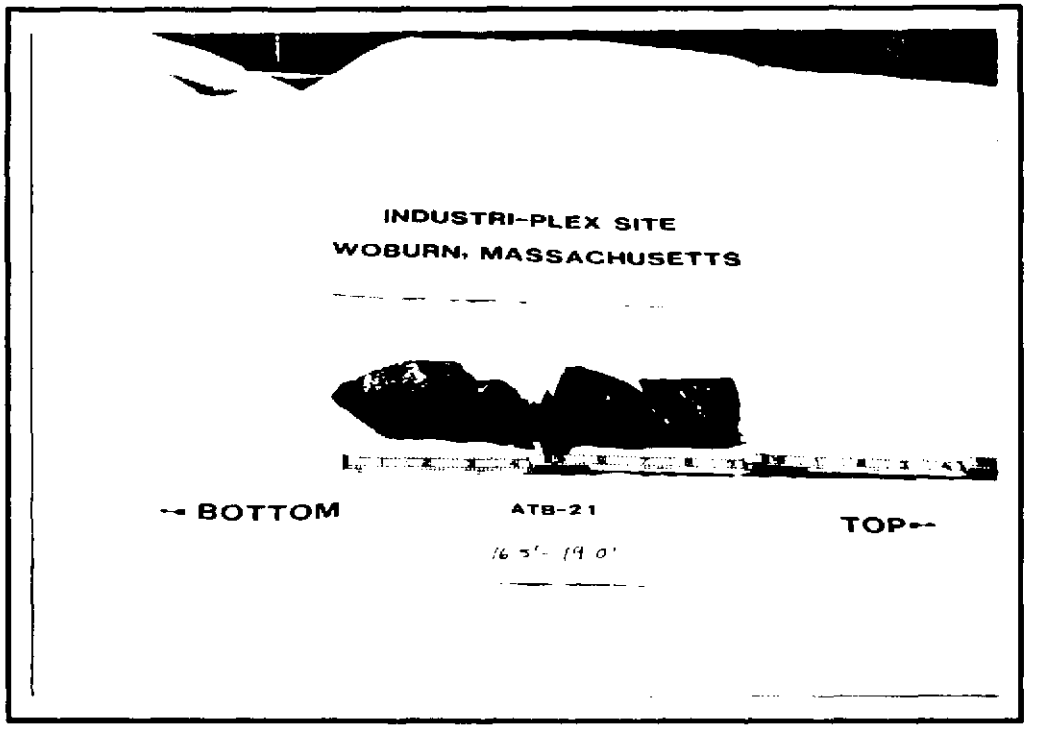
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*





Originals in color.

Title:	Appendix B Section 4 Bedrock Core Photographs
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*



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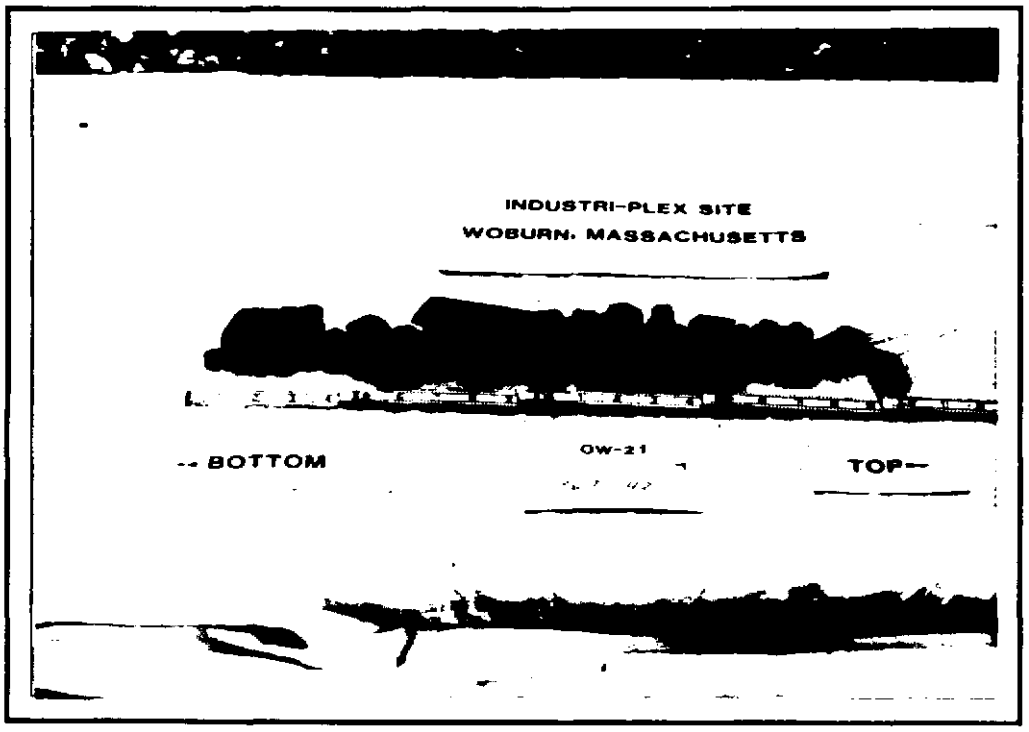
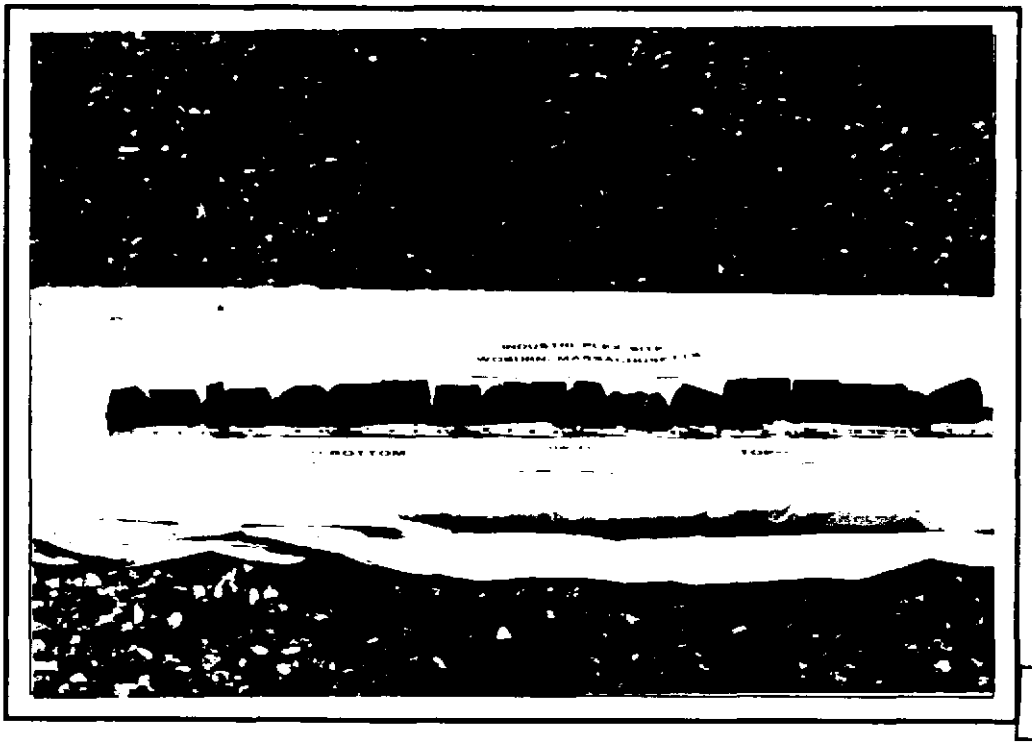
	ROUX *Environmental Consulting & Management*





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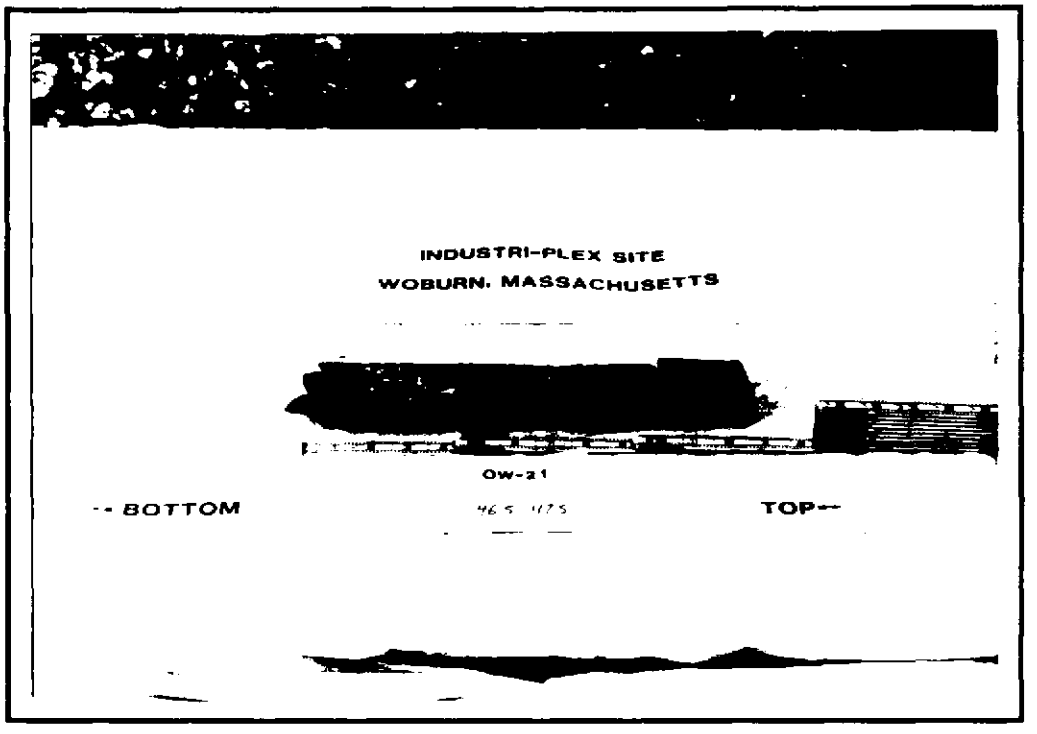

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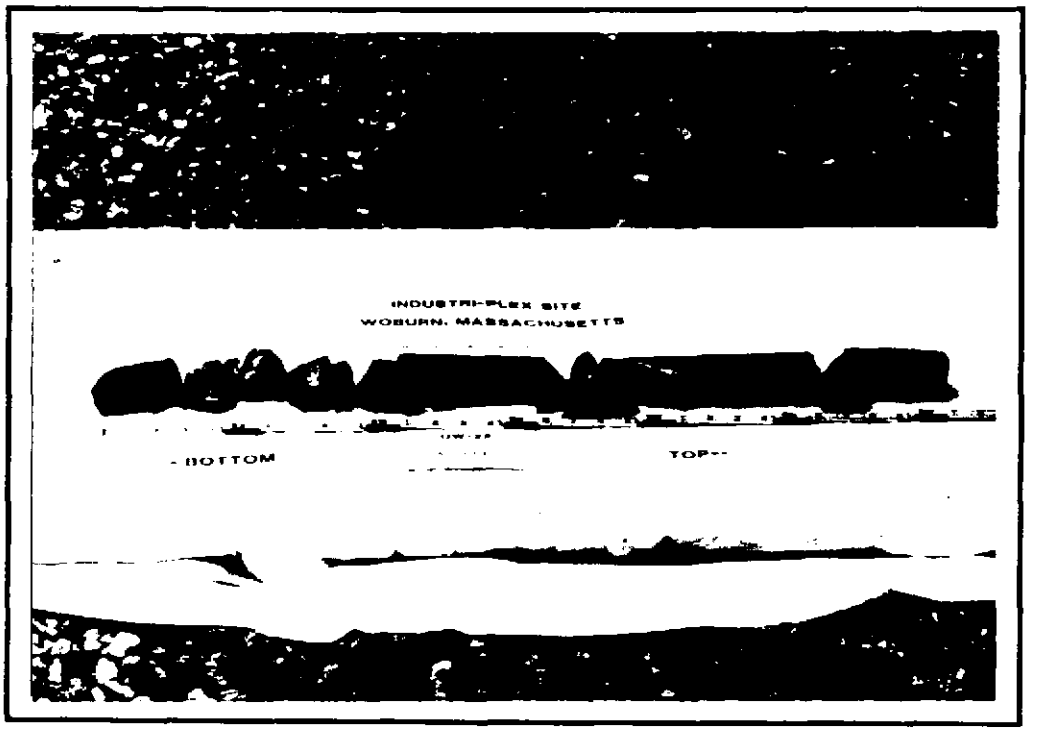
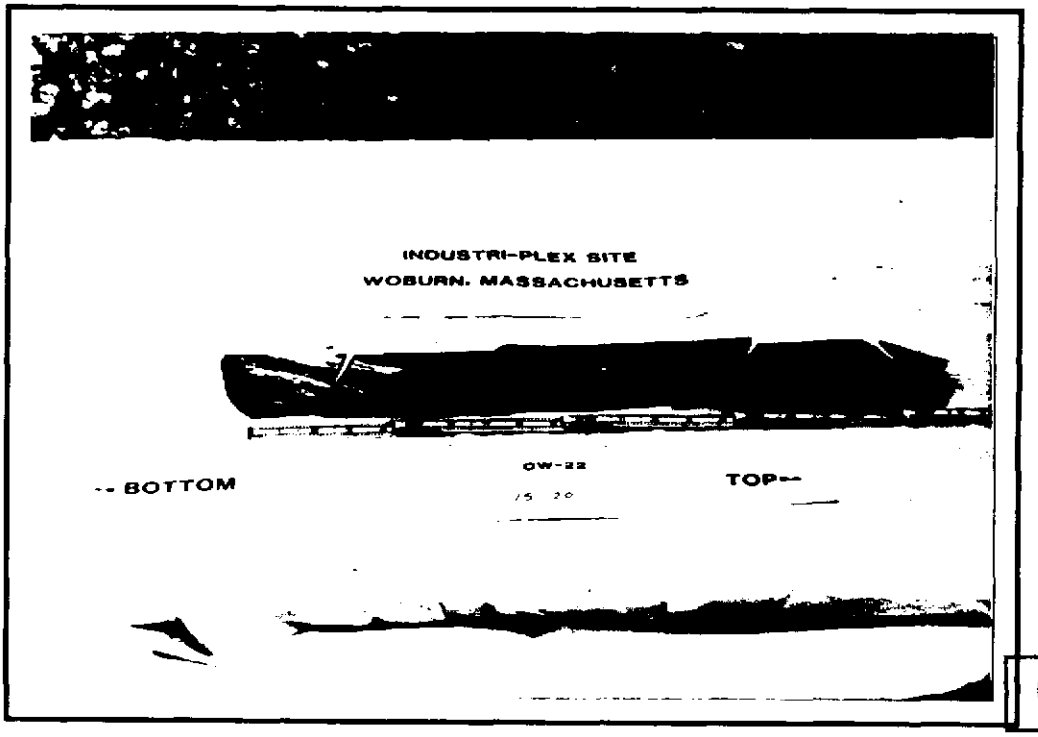
	ROUX *Environmental Consulting & Management*





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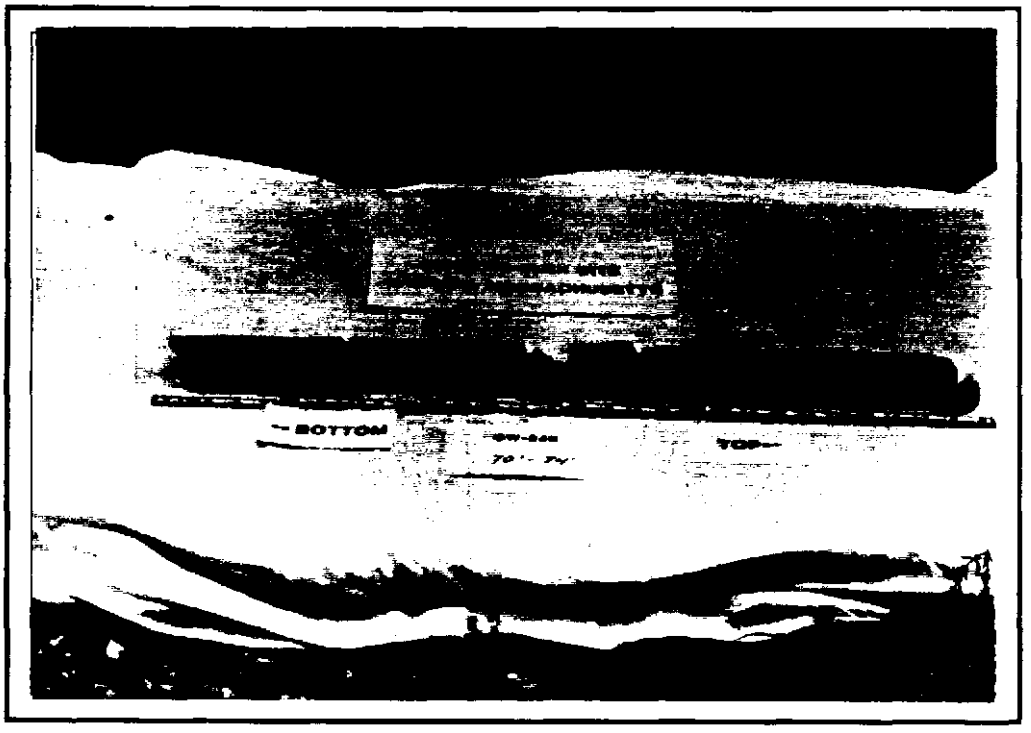

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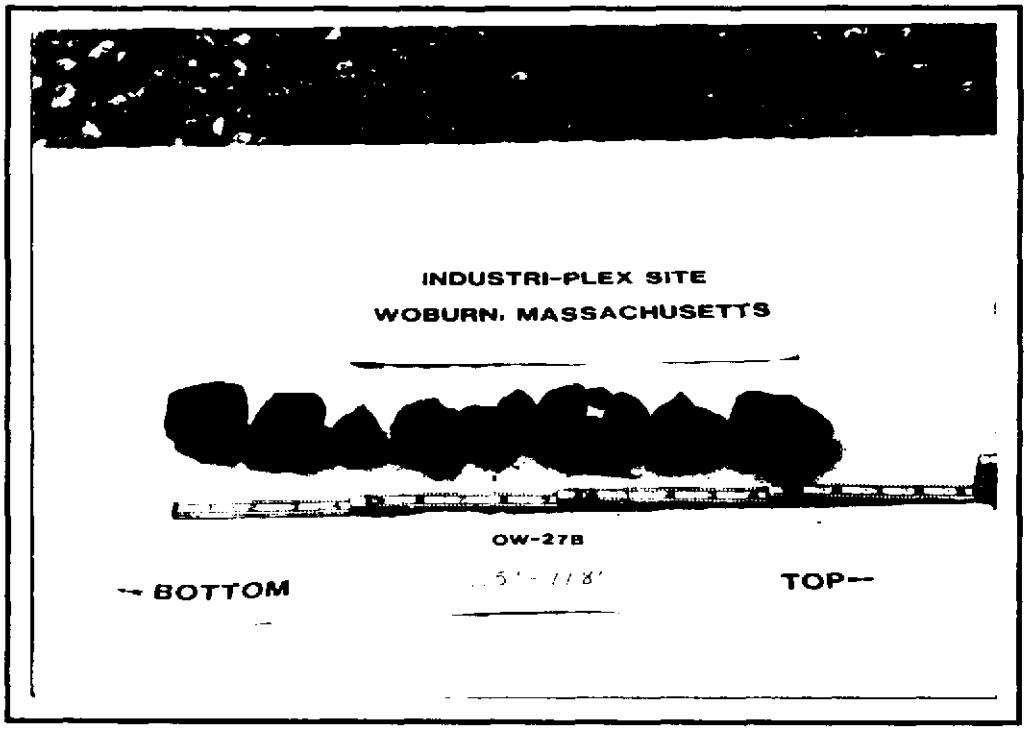

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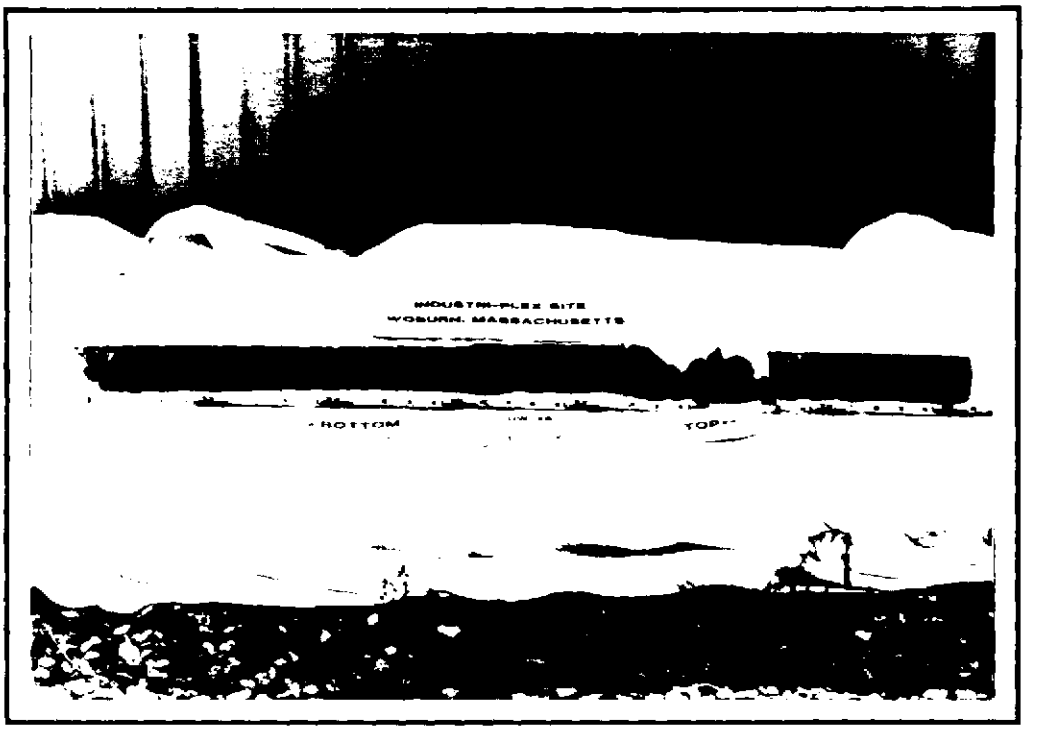
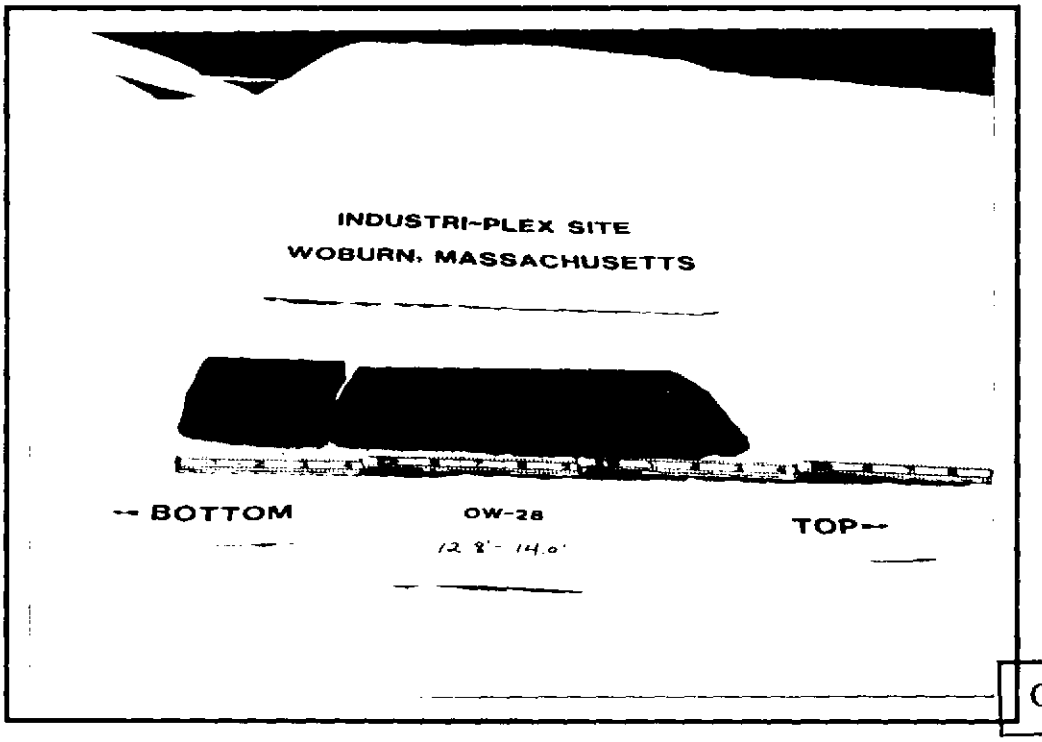
ROUX ASSOCIATES INC





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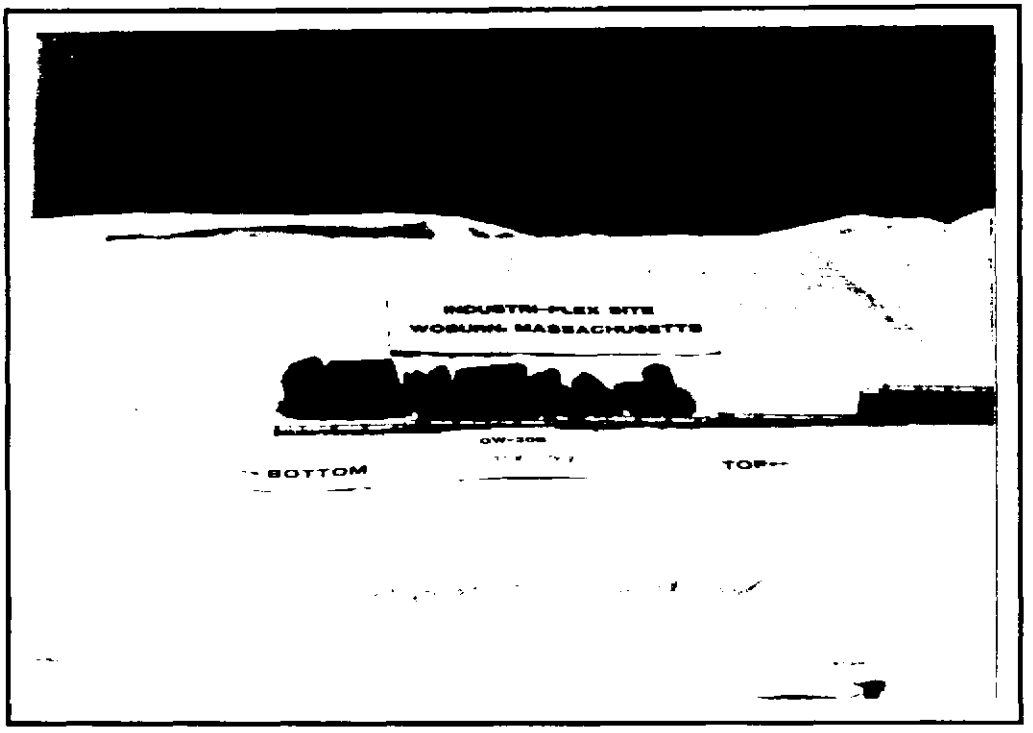
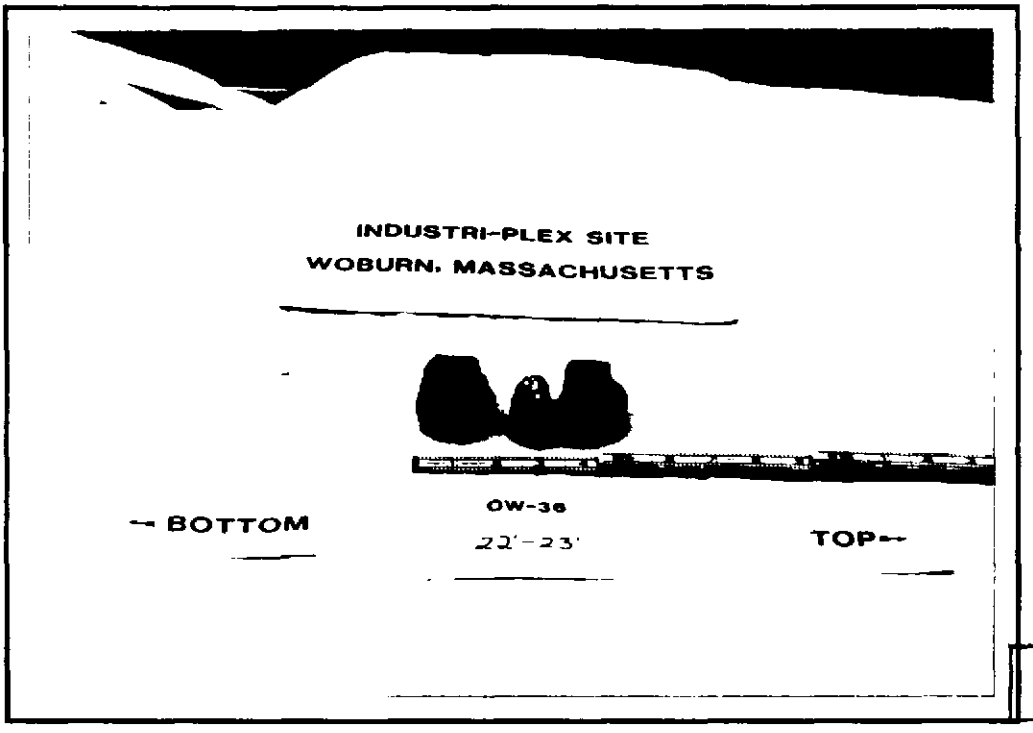
	ROUX *Environmental Consulting & Management*





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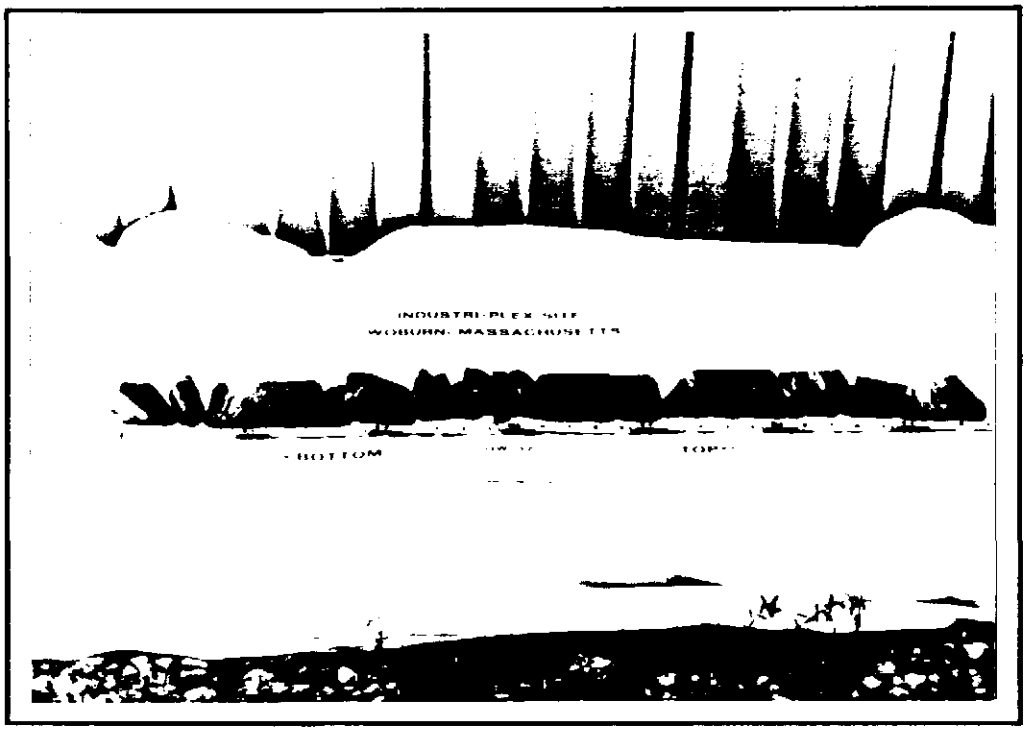

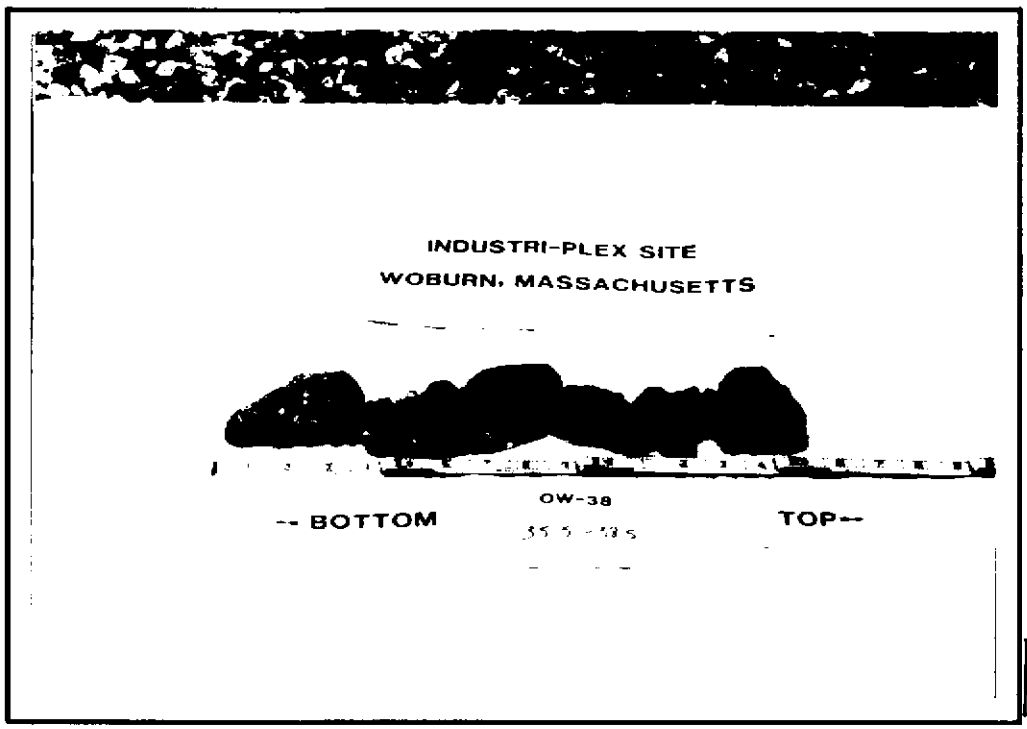

Originals in color.

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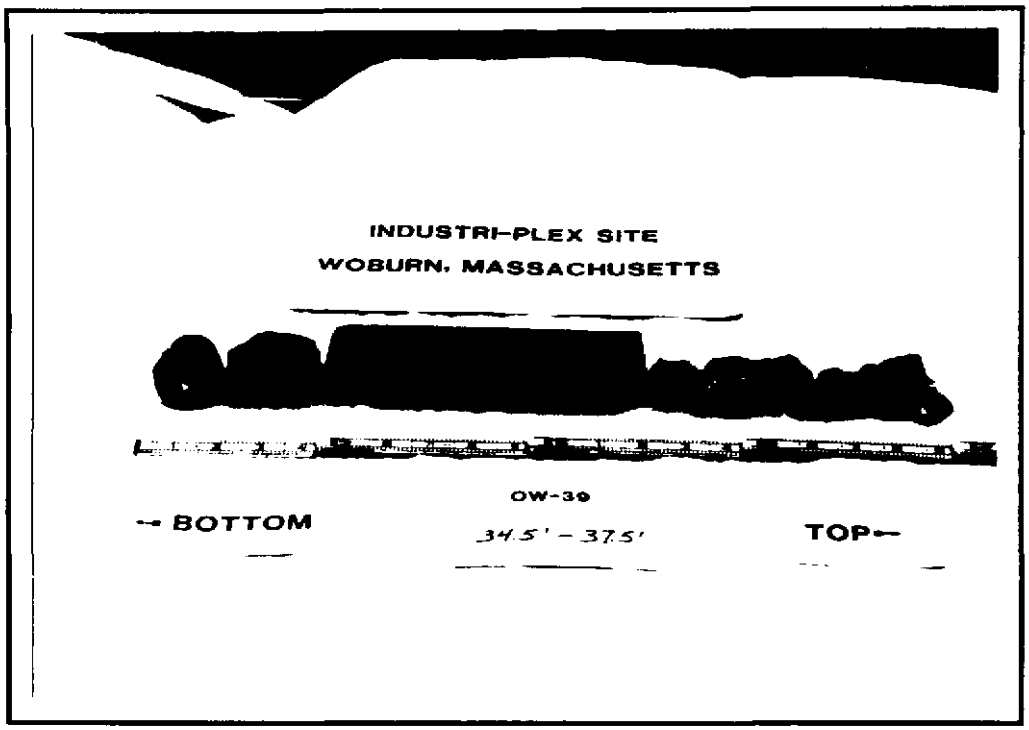
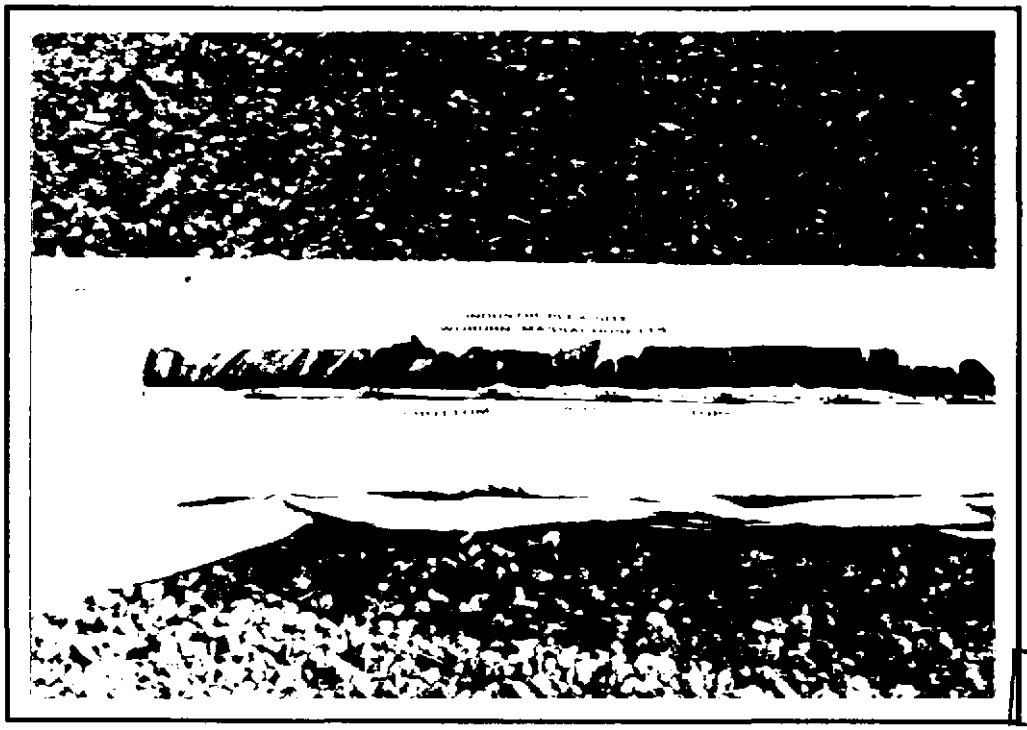
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*

ROUX ASSOCIATES INC





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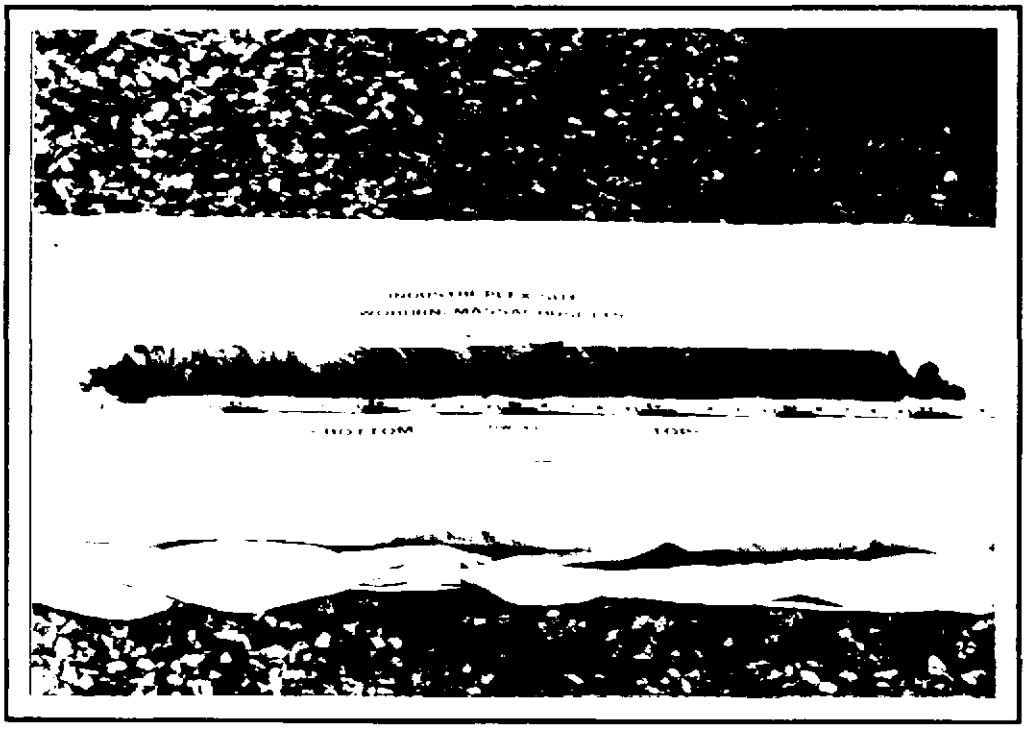

Originals in color.

Title:	Appendix B Section 4 Bedrock Core Photographs
Prepared for:	Industri-Plex Site Remedial Trust
	ROUX *Environmental Consulting & Management*

ROUX ASSOCIATES INC

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 5. Ground-Water Sampling Logs and Chain of Custody Forms

Part 1. Ground-Water Sampling Logs (March 1990, April 1990, and August 1990)

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 0660094
LOCATION: Woburn, MA

WELL NUMBER: OW-1
DATE: 3-20-90
WEATHER: 45°F Raining
SAMPLED BY: [illegible], MS

TYPE OF WELL: 6"
STORAGE TANK: —
TIME OF START: 1000
TIME OF FINISH: 1030

DEPTH TO BOTTOM OF WELL	108	FT.	100.61
DEPTH TO WATER (RE 3/20/90)	7.39	FT.	x 1.5
WATER COLUMN	100.61	FT.	
VOLUME OF WATER IN WELL 1 vol =	150	GAL.	150.915 gal = 1x
VOLUME OF WATER TO REMOVE 3 vol =	450	GAL.	
VOLUME REMOVED	460	GAL.	

RATE OF PURGE: ~5 gpm
METHOD OF PURGE: Submersible

PHYSICAL APPEARANCE/COMMENTS: no odor, clear
Samples designated 1000

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O_2
1030	6.67	1210 µS	10°C (in situ)	clear	~~74.6 mV~~	7.2 mg/l
			10°C		~~FE~~ +57.0 (corrected value)	

TYPES OF SAMPLES COLLECTED

Full Suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

Enseco-Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

3-19-90 (RG)

WELL NUMBER: OW-1A
DATE: 3-19-90
WEATHER: 55°F Partly cloudy
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1700
TIME OF FINISH: 1730

DEPTH TO BOTTOM OF WELL	25	FT.	
DEPTH TO WATER	6.05 (8 - 1.93 after pumping)	FT.	18.95
WATER COLUMN	18.95	FT.	.65
VOLUME OF WATER IN WELL	12.3175	GAL.	12.3175
VOLUME OF WATER TO REMOVE	37	GAL.	
VOLUME REMOVED	85	GAL.	

RATE OF PURGE: ~10 gpm
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

tannish tint, moderate turbidity
Designate bottles 1700

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1730	6.56	210 µS	(4.5°C in situ) 5°C	moderate turbidity	~~+121.7 mV~~ +104.7mV (corrected value)	4.8 mg/l

TYPES OF SAMPLES COLLECTED

Full suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

Enseco-Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609 Y
LOCATION: Woburn, MA

WELL NUMBER: OW-4
DATE: 3-19-90
WEATHER: 45°F Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 6"
STORAGE TANK: —
TIME OF START: 0930
TIME OF FINISH: 0950

DEPTH TO BOTTOM OF WELL	44	FT.	
DEPTH TO WATER	6.01 (8 - 1.86 - after pumping)	FT.	37.99
WATER COLUMN	37.99	FT.	1.5
VOLUME OF WATER IN WELL	57	GAL.	
VOLUME OF WATER TO REMOVE	180	GAL.	56.985 gal = 1 vol
VOLUME REMOVED	180	GAL.	

RATE OF PURGE: ~30 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS: Designate bottles 0930
Tannish to orange tint.
Moderately turbid

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
0950	6.95	960 µS	(9°C in situ) 10°C	moderate	~~[illegible]~~ mV +30.4 (corrected value)	0.08 mg/l

TYPES OF SAMPLES COLLECTED
Full suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION
Enseco-Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-6
DATE: 3-16-90
WEATHER: 45°F, overcast
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 0900
TIME OF FINISH: 0945

DEPTH TO BOTTOM OF WELL	16	FT.	7.77
DEPTH TO WATER	8.23 (10 - 1.69 after purging)	FT.	.65
WATER COLUMN	7.77	FT.	
VOLUME OF WATER IN WELL	5.0505	GAL.	5.0505 gal = 1 vol
VOLUME OF WATER TO REMOVE 3 vol.	16	GAL.	
VOLUME REMOVED	20	GAL.	

RATE OF PURGE: 2L gal - 10 min
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

Designate bottles 0900
Tannish tint, slightly cloudy

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
0945	6.36	540 µS	(7.5°C in situ) 8°C	slightly turbid	~~[illegible]~~ 2mV +170.2 mV (corrected value)	3.4 mg

TYPES OF SAMPLES COLLECTED

Full suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-9
DATE: 3-19-90
WEATHER: 65°F Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 6"
STORAGE TANK: —
TIME OF START: 1230
TIME OF FINISH: 1345

DEPTH TO BOTTOM OF WELL	123	FT.	
DEPTH TO WATER	3-19-90 RC ~~[illegible] 9.55~~	FT.	113.45
WATER COLUMN	113.45	FT.	1.5
VOLUME OF WATER IN WELL	170.175	GAL.	170.175 gal = 1 vol
VOLUME OF WATER TO REMOVE	510	GAL.	
VOLUME REMOVED	~170 ~~[illegible]~~ dry	GAL.	

RATE OF PURGE: ~2 gpm
METHOD OF PURGE: ~~submersible~~ pump

PHYSICAL APPEARANCE/COMMENTS

RC 3-19-90 Sample Designated 1230
~~Duplicate Samples designated OW-99 1300~~
Sheen on water. Organic, swampy, odor.
Greenish-black water, very turbid, muddy

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1345	7.38	[illegible] µS	11°C	very high	3-19-90 RC ~~[illegible]~~ ~~-157.5~~ mV	0.6 mg/l (not in situ probably not strong enough)

-174.5 mV (corrected value)

TYPES OF SAMPLES COLLECTED

Full Suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

Enseco-Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609V
LOCATION: Woburn, MA

WELL NUMBER: OW-10
DATE: 3-20-90
WEATHER: 50°F cloudy
SAMPLED BY: MS

TYPE OF WELL: 4"
STORAGE TANK: –
TIME OF START: 1130
TIME OF FINISH: 1200

DEPTH TO BOTTOM OF WELL	32.5	FT.	
DEPTH TO WATER	4.86	FT.	27.64
WATER COLUMN	27.64	FT.	.65
VOLUME OF WATER IN WELL	17.966	GAL.	
VOLUME OF WATER TO REMOVE	~~5X~~	GAL.	17.96 gal = 1 vol
VOLUME REMOVED	80	GAL.	

RATE OF PURGE: ~10 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

Tannish tint, slightly cloudy
Samples designated ~~1130~~ 1130 (20) 3-20-90

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1200	5.34	220 umhos	(8°C in situ) 8°C	Slightly cloudy	~~200.1 mV~~ +243.1 (corrected value	5.1 mg/l

TYPES OF SAMPLES COLLECTED

Full suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge, MA
RADIAN - Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-11
DATE: 3-20-90
WEATHER: 40°F Cloudy
SAMPLED BY: MS

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1345
TIME OF FINISH: 1420

DEPTH TO BOTTOM OF WELL	42	FT.	
DEPTH TO WATER	4.24	FT.	37.76
WATER COLUMN	37.76	FT.	.65
VOLUME OF WATER IN WELL	24.544	GAL.	24.544 gal = 1 vol
VOLUME OF WATER TO REMOVE	76	GAL.	
VOLUME REMOVED	80	GAL.	

RATE OF PURGE: ~5 gpm
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

Tannish to orange tint
Slightly turbid to moderate
Sample Bottles designated 1345

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1420	6.39	340 µS	7°C	Slight to moderate turbidity	~~67.3 mV~~ +50.3 (corrected value)	0.8 mg/l

~~18 mV~~ by (EE) 3-22-90

TYPES OF SAMPLES COLLECTED

Full suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

Enseco - Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06609V
LOCATION: Woburn, MA

WELL NUMBER: OW-12
DATE: 3-15-90
WEATHER: 65° Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 0950
TIME OF FINISH: 1100

DEPTH TO BOTTOM OF WELL	52	FT.	44.88
DEPTH TO WATER	7.12 (~ 7.40 after pumping)	FT.	.65
WATER COLUMN	44.88	FT.	29.172 gal = 1 vol
VOLUME OF WATER IN WELL	30	GAL.	
VOLUME OF WATER TO REMOVE (3 vol.)	90	GAL.	
VOLUME REMOVED (3 vol.)	90	GAL.	

RATE OF PURGE: ~15 gal/min
METHOD OF PURGE: Centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

tannish, slightly cloudy at start
then black, slightly cloudy; has moderate odor to strong odor
Sample designated 1000.

FIELD MEASUREMENTS

TIME	pH 3/15/90 RE	COND 3/15/90 RE	TEMP (in situ)	TURB	Eh	O^2
1100	~~8.06~~ 7.15	~~4620~~ 4200 µS	(9.5°C) 11°C	Slightly cloudy	~~-71.7~~ mV -91.7 (corrected value)	0.2 mg/l

TYPES OF SAMPLES COLLECTED

Full Suite for Enseco
Metal Speciation - 1 bottle for Radian
Split with NUS / NUS duplicate

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06608Y
LOCATION: Woburn, MA

WELL NUMBER: OW-13
DATE: 3-19-90
WEATHER: 60° Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1420
TIME OF FINISH: 1510

DEPTH TO BOTTOM OF WELL	33.5	FT.	29.36
DEPTH TO WATER	4.14 (6 - 1.78 after purging)	FT.	.65
WATER COLUMN	29.36	FT.	
VOLUME OF WATER IN WELL	19.084	GAL.	19.084 gal = 1 vol
VOLUME OF WATER TO REMOVE	58	GAL.	
VOLUME REMOVED	60	GAL.	

RATE OF PURGE: ~5 gpm
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

Grayish tint, moderately turbid
Duplicate collected, designated OW-99

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1510	7.02	~~12°C~~ 3-19-90 (RE) 990 µS	(12°C in situ) 12°C	moderate	~~-121.5 mV~~ -141.5 mV (corrected value)	0.6 mg/L

TYPES OF SAMPLES COLLECTED

2 Full suites for Enseco — OW-13/1420, OW-99 1300 duplicate
2 bottles for metal speciation to Radian — "

LABORATORY NAME AND LOCATION

Enseco - Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-14
DATE: 3-15-90
WEATHER: 68° Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1145
TIME OF FINISH: 1215

DEPTH TO BOTTOM OF WELL	50	FT.	43.03
DEPTH TO WATER	6.97 (9 - 1.73' after pumping)	FT.	.05
WATER COLUMN	43.03	FT.	27.9695 gal = 1 v
VOLUME OF WATER IN WELL	30	GAL.	
VOLUME OF WATER TO REMOVE (3 vol.)	90	GAL.	
VOLUME REMOVED	100	GAL.	

RATE OF PURGE: 90 gal in 15 min
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

Clear, very slightly cloudy, ~~then~~ ~~then~~ then orange tint with moderate turbidity. [illegible] 3-15-90 (PE)

Sample designated 1145.

FIELD MEASUREMENTS

TIME	pH (PE) 3-15-90	COND (PE) 3-15-90	TEMP	TURB	Eh	O^2
1215	~~8.18~~ 5.87	~~700~~ 520 µS	(8.5°C in situ)	Very slightly cloudy then moderate turbidity	~~195.4~~ mV +178.4 (corrected value)	2.6 mg/l

TYPES OF SAMPLES COLLECTED

Full Suite for Enseco
1 bottle metal speciation for Radian
Split with NUS

LABORATORY NAME AND LOCATION

Enseco - Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-15
DATE: 3-19-90
WEATHER: 55°F Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 6"
STORAGE TANK: —
TIME OF START: 1030
TIME OF FINISH: 1055

DEPTH TO BOTTOM OF WELL	28	FT.	23.98
DEPTH TO WATER	4.02 (4.07 after purging)	FT.	1.5
WATER COLUMN	23.98	FT.	
VOLUME OF WATER IN WELL	35.97	GAL.	35.97
VOLUME OF WATER TO REMOVE	117	GAL.	
VOLUME REMOVED	120	GAL.	

RATE OF PURGE:
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

Designate bottles 1030
Clear to v. slightly cloudy.
Very little suspended particles

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1055	6.07	556 µS	(6.5°C w sim) 8°C	clear to v. slightly cloudy	~~154.5~~ mV +137.5 mV (corrected value)	2.0 mg/l

TYPES OF SAMPLES COLLECTED

Full Suite to Enseco
1 Bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

Enseco - Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC.

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-16
DATE: 3-20-90
WEATHER: 40° Cloudy
SAMPLED BY: MS

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1445
TIME OF FINISH: 1515

DEPTH TO BOTTOM OF WELL	35.7	FT.	31.9
DEPTH TO WATER	3.8	FT.	.65
WATER COLUMN	31.9	FT.	
VOLUME OF WATER IN WELL	20.735	GAL.	20.735 gal = 1 vol
VOLUME OF WATER TO REMOVE	66	GAL.	
VOLUME REMOVED	80	GAL.	

RATE OF PURGE: ~5 gpm
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

Designate Samples 1500
No preservative used in 5 VOA vials (2 for TOC, 3 for 624)
Brown, cloudy. Water has foam on it, and reacts with preservative (acids) by foaming.

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1530	7.80	17880 µS	(9°C in situ)	slightly turbid	~~142 mV~~ -59.2 (corrected value)	0.4 mg

TYPES OF SAMPLES COLLECTED

Full Suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge, MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: JSRT-GSIP
PROJECT NO.: 066094
LOCATION: Woburn, MA

WELL NUMBER: OW-17
DATE: 3-15-90
WEATHER: 70° Sunny
SAMPLED BY: JA Ly

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1420
TIME OF FINISH: 1515

DEPTH TO BOTTOM OF WELL	30	FT.	
DEPTH TO WATER	5.73 (8 - 2.18 after pumping)	FT.	24.27
WATER COLUMN	24.27	FT.	.65
VOLUME OF WATER IN WELL	15.7755	GAL.	15.7755 gal = 1 vol
VOLUME OF WATER TO REMOVE	47	GAL.	
VOLUME REMOVED	50	GAL.	

RATE OF PURGE: 5 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS: 624 and TOC vials are not preserved.
Tan to brown in color, effervescent. Reacted with HCl and sulfuric acid. Foamed. Some sediment.

FIELD MEASUREMENTS

TIME	pH (RE)	COND (RE)	TEMP	TURB	Eh	O^2
1505	~~9.11~~ 3-15-90	~~6400~~ 3-15-90	(9.5' in situ)	slightly turbid	~~-68~~ 0 mV	0.6 mg/l
	7.01	5670	11°C		-85 mV (corrected value)	

TYPES OF SAMPLES COLLECTED

1 Full suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge, MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-18
DATE: 3-15-90
WEATHER: ~65° Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 6"
STORAGE TANK: —
TIME OF START: 1600
TIME OF FINISH: 1635

DEPTH TO BOTTOM OF WELL	55	FT.	46.31
DEPTH TO WATER	~~8.69~~ (9.78 after pumping)	FT.	1.5
WATER COLUMN	46.31	FT.	69.465 gal = 1 v
VOLUME OF WATER IN WELL	~~70~~ 70	GAL.	
VOLUME OF WATER TO REMOVE	~~210~~ 210	GAL.	
VOLUME REMOVED	220	GAL.	

RATE OF PURGE: ~8 gal/min
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

clear, no odor

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1635	~~11.75~~ 5.65	~~1030~~ 1020 µS	(10.5°C in situ) 11°C	clear	~~247.6 mV~~ ~~208.1 mV~~ +191.7 (corrected value)	0.9 mg/L

TYPES OF SAMPLES COLLECTED

1 Full Suite to Enseco

1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge, MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC.

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-18A
DATE: 3-15-90
WEATHER: 70° Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1315
TIME OF FINISH: 1400

DEPTH TO BOTTOM OF WELL	15	FT.	6.96
DEPTH TO WATER	8.04	FT.	.65
WATER COLUMN	6.96	FT.	
VOLUME OF WATER IN WELL	5	GAL.	4.524 gal = 1 vol
VOLUME OF WATER TO REMOVE	18	GAL.	
VOLUME REMOVED	15 - well dry	GAL.	

RATE OF PURGE: ~3 gpm
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

Clear, then has orange tint; moderate turbidity.

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1350	by RE 3-15-90 ~~5.86~~ 6.27	by RE 3-15-90 ~~270~~ 860 µS	(10°C in situ) 15°C	moderately turbid	~~224.0~~ mV +207.0 (corrected value)	0.7 mg/l

TYPES OF SAMPLES COLLECTED

Full suite for Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

Enseco-Erco, Cambridge, MA
Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-19
DATE: 3-16-90
WEATHER: 55° Partly cloudy
SAMPLED BY: [illegible]

TYPE OF WELL: 6"
STORAGE TANK: —
TIME OF START: 1640
TIME OF FINISH: 1700

DEPTH TO BOTTOM OF WELL	70	FT.	65.9
DEPTH TO WATER	4.10	FT.	1.5
WATER COLUMN	65.9	FT.	
VOLUME OF WATER IN WELL	98.85	GAL.	98.85
VOLUME OF WATER TO REMOVE	306	GAL.	
VOLUME REMOVED	320	GAL.	

RATE OF PURGE: ~10 gal/min
METHOD OF PURGE: ~~Centrifugal~~ pump

PHYSICAL APPEARANCE/COMMENTS

Slight tannish tint, mod turbidity

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1700	6.01	440 µS	(9°C in situ) 9°C	moderate turbidity	~~132.5~~ +120.8 mV Corrected valu	0.8 mg/l

TYPES OF SAMPLES COLLECTED

Full suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge, MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-19A
DATE: 3-16-90
WEATHER: 65°F Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1430
TIME OF FINISH: 1515

DEPTH TO BOTTOM OF WELL	40	FT.	
DEPTH TO WATER	~~4.01 (6-1.89 after purge)~~	FT.	35.99
WATER COLUMN	35.99	FT.	.65
VOLUME OF WATER IN WELL	24	GAL.	
VOLUME OF WATER TO REMOVE	~~90~~ 76	GAL.	23.3935 gal = 1 vol.
VOLUME REMOVED	90	GAL.	

RATE OF PURGE: ~~35~~ gal/min
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

Tannish tint, slightly turbid.

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1515	6.47	340 µS	(8.5°C in situ) 10°C	slightly turbid	~~95.7mV~~ +78.7mV (corrected value)	0.6 mg/l

TYPES OF SAMPLES COLLECTED

Full suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-20
DATE: 3-16-90
WEATHER: ~60°F Partly Sunny
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1240
TIME OF FINISH: 1310

DEPTH TO BOTTOM OF WELL	99.5	FT.	93.5
DEPTH TO WATER	6.00 (8 - 1.83 after pumping)	FT.	.65
WATER COLUMN	93.5	FT.	
VOLUME OF WATER IN WELL	60.775	GAL.	60.775 gal = 1 w
VOLUME OF WATER TO REMOVE	182	GAL.	
VOLUME REMOVED	190	GAL.	

RATE OF PURGE: 2 gal/min
METHOD OF PURGE: ~~centrifugal~~ - then Submersible

PHYSICAL APPEARANCE/COMMENTS

Gray to black tint, swampy odor, slightly cloudy

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1310	6.83	420 µS	(10°C in situ) 11°C	Slightly Cloudy	~~[illegible]~~ -164.0 mV (corrected value)	1.0 mg/l

TYPES OF SAMPLES COLLECTED

Full Suite to Enseco
1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

Enseco-Erco, Cambridge, MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06609V
LOCATION: Woburn, MA

WELL NUMBER: OW-21
DATE: 3-21-90
WEATHER: Rainy 45°F
SAMPLED BY: MS

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 0940
TIME OF FINISH: 1040

DEPTH TO BOTTOM OF WELL	17.55	FT.	
DEPTH TO WATER	4.64	FT.	12.91
WATER COLUMN	12.91	FT.	.65
VOLUME OF WATER IN WELL	8.3915	GAL.	8.3915 gal = 1 vol
VOLUME OF WATER TO REMOVE	26	GAL.	
VOLUME REMOVED	35	GAL.	

RATE OF PURGE: 7 gpm
METHOD OF PURGE: ~~centrifugal~~ pump

PHYSICAL APPEARANCE/COMMENTS

Designate samples 1000
Designate duplicate set OW-100; 1030
No suspend[illegible]; slight turbid[illegible]

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1040	5.95	360 µm/cm	(6.5°C in situ) 7°C	Cloudy	~~130.0~~ mV	2.2 mg/l

+113.0 (corrected value)

TYPES OF SAMPLES COLLECTED

2 Full Suites to Ensco < OW-21; 1000 / OW-100; 1030
Split with NUS < 1 suite; CN, Sn, BNA, Pesticide/PCB, VOC
1 matrix spike suite

LABORATORY NAME AND LOCATION

ENSECO-ERCO, Cambridge, MA
RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-22
DATE: 3-21-90
WEATHER: 35°F overcast, windy
SAMPLED BY: [illegible]

TYPE OF WELL: 2"
STORAGE TANK: —
TIME OF START: 1200
TIME OF FINISH: 1240

DEPTH TO BOTTOM OF WELL	16.62	FT.	8.62
DEPTH TO WATER	8.00	FT.	.16
WATER COLUMN	8.62	FT.	
VOLUME OF WATER IN WELL	1.3792	GAL.	1.3792 gal = 1 vol
VOLUME OF WATER TO REMOVE	4.1376	GAL.	
VOLUME REMOVED	10	GAL.	

RATE OF PURGE: ~5 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

Designate bottles 1200

Tannish gray, very cloudy

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1240	6.34	1900 µS	(6.5°C in situ) 7°C	very cloudy	~~-8.6 mV~~ -25.6 (corrected value)	1.9 mg/l

TYPES OF SAMPLES COLLECTED

Full Suite to Enseco. 1 bottle for metal speciation to Radian
Split with NUS - CN (1 liter), Sn (1 liter), Total metals (1 liter)
BNA (80 oz), Pesticides/PCB (80 oz). 2 VOA.

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge, MA

RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: TSRT-GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-28
DATE: 3-21-90
WEATHER: Cloudy ~35°F
SAMPLED BY: [illegible]

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1340
TIME OF FINISH: 1600

DEPTH TO BOTTOM OF WELL	11.51	FT.	
DEPTH TO WATER	~11.00	FT.	0.51
WATER COLUMN	0.51	FT.	.65
VOLUME OF WATER IN WELL	0.3315	GAL.	
VOLUME OF WATER TO REMOVE	1	GAL.	0.3315
VOLUME REMOVED	0.75 - went dry	GAL.	

RATE OF PURGE: < .25 gpm
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

Designate bottles 1400. Fill 5 VOA bottles, 1 bottle for m
and 1/2 bottle for total metals. Well Dry. Let recharge from 1400 to 1600
Collect 1/2 bottle for dissolved metals. Will let well recharge, overnic
Water Brown, very turbid

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh
1400	~~[illegible]~~ J.G.	~~[illegible]~~ J.G.	(6°C in situ)	~~[illegible]~~ J.G.	~~[illegible]~~ (corrected) J

see 3/22/90 sheet

TYPES OF SAMPLES COLLECTED

To Enseco - 3 VOC vials for method 624, 2 VOC vials for TOC, 1/2 bottle for tot
To Radian - 1/2 bottle for dissolved metals.
1 bottle for metal speciation

H. Hollister will attempt to collect additional sample tomo

LABORATORY NAME AND LOCATION

ENSECO - ERCO, Cambridge, MA

RADIAN, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

Continuation of Sample from 3-21-90

CLIENT: ISRT-GSIP
PROJECT NO.: 066609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-28
DATE: 3-22-90
WEATHER: SUNNY 50°F
SAMPLED BY: HH

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1100
TIME OF FINISH: 1155

DEPTH TO BOTTOM OF WELL: 11.51 FT.
DEPTH TO WATER: FT.
WATER COLUMN: FT.
VOLUME OF WATER IN WELL: GAL.
VOLUME OF WATER TO REMOVE: GAL.
VOLUME REMOVED: GAL.

RATE OF PURGE:
METHOD OF PURGE:

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
11:55	6.60	190	9°C (in situ) 11°C		128.2	6 mg/

TYPES OF SAMPLES COLLECTED

To Enseco — 3 VOC vials for method 624 ~~and 2 VOC vials for~~ to replace 3 vials collected on 3-21-90. 1/2 bottle for BNA. 3-23-90 (RE)

LABORATORY NAME AND LOCATION

Enseco - Erco, Cambridge, MA

Radian, Austin, Texas

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 016609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-7 (OW-101)
DATE: 4-25-90
WEATHER: Cloudy, cold, windy
SAMPLED BY: Jay, EJ

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1450
TIME OF FINISH: 1630

(measured on 4-23-90)

DEPTH TO BOTTOM OF WELL	32.14	FT.	25.89
DEPTH TO WATER	6.25	FT.	x .65
WATER COLUMN	25.89	FT.	
VOLUME OF WATER IN WELL 1 vol =	16.83	GAL.	16.83 gal = 1 vol
VOLUME OF WATER TO REMOVE 3 vol =	50.49	GAL.	
VOLUME REMOVED	55	GAL.	

RATE OF PURGE: 20 gpm
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

Designate samples OW-7, 1500
Designate duplicate set OW-101, 1510
Tannish tint to water with orange suspended particulates

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O_2
1500	6.17	470 µS/cm	(10°C in situ) 10°C	low at 1st; then moderately turbid	~~219.2 mV~~ +202.2 (corrected value)	4-25-90 RE Jay ~~Hist~~ mg/l 1.1

TYPES OF SAMPLES COLLECTED

Collect full suite for Enseco + full suite as duplicate
Collect 2 bottles for metal speciation + 2 VOAs for Fe^{+2} and duplicate of both for Radian.

LABORATORY NAME AND LOCATION

ENSECO-ERCO; CAMBRIDGE, MA
RADIAN; AUSTIN, TX

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609 Y
LOCATION: WOBURN, MA

WELL NUMBER: OW-11
DATE: 4-25-90
WEATHER: COLD, CLOUDY
SAMPLED BY: JY, EJ

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1845
TIME OF FINISH: 1900

DEPTH TO BOTTOM OF WELL	42.32	FT.	
DEPTH TO WATER	4.01	FT.	
WATER COLUMN	38.31	FT.	38.31
VOLUME OF WATER IN WELL	1 vol = 24.90	GAL.	X .65
VOLUME OF WATER TO REMOVE	3 vol = 74.70	GAL.	24.90
VOLUME REMOVED	85	GAL.	

RATE OF PURGE: 15 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

DESIGNATE SAMPLE 1900

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1900	6.39	1310 µS/cm	(9°C in situ) 10°C	Slightly turbid, pale yellow to tan tint	+45.7 mV	1.4 mg/l

TYPES OF SAMPLES COLLECTED

ONE BOTTLE FOR METAL SPECIATION TO RADIAN

LABORATORY NAME AND LOCATION

RADIAN ; AUSTIN, TEXAS

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 061609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-12
DATE: 4-25-90
WEATHER: Cloudy ~45° Windy
SAMPLED BY: EJ

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1000
TIME OF FINISH: 1045

DEPTH TO BOTTOM OF WELL	51.75	FT.
DEPTH TO WATER	6.60	FT. (measured on 4-10-90)
WATER COLUMN	45.15	FT.
VOLUME OF WATER IN WELL	1 vol = 29.35	GAL. 45.15 × .65 = 1 vol = 29.35 gal
VOLUME OF WATER TO REMOVE	3 vol = 88.04	GAL.
VOLUME REMOVED	110	GAL.

RATE OF PURGE: ~17 gpm
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

Designate Sample 1000.
Water has moderate odor, yellowish
Some suspended particles

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1025	6.79	4090	10°C in situ 10°C	cloudy	-63.4 mV	1.1 mg/l

TYPES OF SAMPLES COLLECTED

1 Bottle for Radian - metal Speciation

LABORATORY NAME AND LOCATION

Radian, Austin TX

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 066009Y
LOCATION: Woburn, MA

WELL NUMBER: OW-17
DATE: 4-25-90
WEATHER: Cloudy, Showers 50°F
SAMPLED BY: JT, EJ

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1350
TIME OF FINISH: 1415

DEPTH TO BOTTOM OF WELL	26.32	FT.	
DEPTH TO WATER	5.64	FT.	(measured on 4-10-)
WATER COLUMN	20.68	FT.	
VOLUME OF WATER IN WELL	1 VOL = 13.44	GAL.	20.68
VOLUME OF WATER TO REMOVE	3 VOL = 40.33	GAL.	.65
VOLUME REMOVED	50	GAL.	13.44 gal = 1 vo

RATE OF PURGE: 15 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

Designate samples 1400.

Water tinted yellowish-tan, slightly turbid to clear. Sample effervessed slightly when added to preservative. Was able to leave preservative in vials.

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1400	7.21	4240 µS/cm (9.5°C in situ)	9°C	slightly turbid to clear	-33.8 mV	0.2 mg

TYPES OF SAMPLES COLLECTED

3 VOA vials for Enseco. Left samples preserved.

LABORATORY NAME AND LOCATION

ENSECO-ERCO; CAMBRIDGE, MASS.

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 016609Y
LOCATION: Woburn, MA

WELL NUMBER: OW-18
DATE: 4-25-90
WEATHER: Overcast, drizzling 50°F
SAMPLED BY: [illegible]

TYPE OF WELL: 6"
STORAGE TANK: —
TIME OF START: 1250
TIME OF FINISH: 1300

(measured on 4-10-90)

DEPTH TO BOTTOM OF WELL	55.46	FT.	
DEPTH TO WATER	8.45	FT.	47.01
WATER COLUMN	47.01	FT.	x 1.5
VOLUME OF WATER IN WELL	1 vol = 70.52	GAL.	
VOLUME OF WATER TO REMOVE	3 vol = 211.55	GAL.	70.52
VOLUME REMOVED	215	GAL.	

RATE OF PURGE: 15 gpm
METHOD OF PURGE: Centrifugal

PHYSICAL APPEARANCE/COMMENTS

Designate bottle 1250.
Clear

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1300	5.74	1050 µS/cm	9°C in situ	clear	198.5 mV	1.6 mg/l

TYPES OF SAMPLES COLLECTED

1 bottle for metal speciation to Radian

LABORATORY NAME AND LOCATION

Radian, Austin TX

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 0606094
LOCATION: Woburn, Ma

WELL NUMBER: OW-19
DATE: 4-25-90
WEATHER: Cold, windy, cloudy
SAMPLED BY: [illegible]

TYPE OF WELL: 6"
STORAGE TANK: —
TIME OF START: 1800
TIME OF FINISH: 1815

DEPTH TO BOTTOM OF WELL	68.54	FT.	
DEPTH TO WATER	3.88	FT.	
WATER COLUMN	64.66	FT.	64.66
VOLUME OF WATER IN WELL	1 vol = 96.99	GAL.	x 1.5
VOLUME OF WATER TO REMOVE	3 vol = 290.97	GAL.	96.99
VOLUME REMOVED	310	GAL.	

RATE OF PURGE: 15 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

Designate sample 1800.

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1800	6.14	460 µS/cm	(10°C in situ)	clear	220.2 mV	1.1 mg/l

TYPES OF SAMPLES COLLECTED

Collect 1 bottle for metal speciation for Radian

LABORATORY NAME AND LOCATION

RADIAN ; AUSTIN, TX

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609Y
LOCATION: WOBURN, MA

WELL NUMBER: OW-20
DATE: 4-25-90
WEATHER: COLD, CLOUDY, WINDY
SAMPLED BY: JY, EJ

TYPE OF WELL: 4"
STORAGE TANK: —
TIME OF START: 1820
TIME OF FINISH: 1830

DEPTH TO BOTTOM OF WELL	90.72	FT.
DEPTH TO WATER	5.93	FT.
WATER COLUMN	84.79	FT.
VOLUME OF WATER IN WELL	1 vol = 55.11	GAL.
VOLUME OF WATER TO REMOVE	3 vol = 165.34	GAL.
VOLUME REMOVED	170	GAL.

84.79
X 1.65
55.11

RATE OF PURGE: 3 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

DESIGNATE SAMPLE 1830

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1830	6.70	500 µS/cm	(8°C in situ) 9°C	SLIGHT TURBIDITY, NO COLOR	+76.2 mV	1.0 mg/l

TYPES OF SAMPLES COLLECTED

ONE BOTTLE FOR METAL SPECIATION TO RADIAN

LABORATORY NAME AND LOCATION

RADIAN; AUSTIN, TEXAS

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA (Industri-Plex Site)

WELL NUMBER: OW-1
DATE: 8/16/96 (pumping) / 8/17/96 (sampling)
WEATHER: Hot, Sunny
SAMPLED BY: H. Fruit, M. Smith, D. Fuller

TYPE OF WELL: 6"
STORAGE TANK: 55 gal drums
TIME OF START: 13:49 (pumping)
TIME OF FINISH: 15:45

DEPTH TO BOTTOM OF WELL	108	FT.
DEPTH TO WATER	7.19	FT.
WATER COLUMN	100.81	FT.
VOLUME OF WATER IN WELL	147.2	GAL.
VOLUME OF WATER TO REMOVE	442	GAL.
VOLUME REMOVED	260	GAL.

RATE OF PURGE: 6 gpm - 1st Drum - slowed to 2-3 gpm 2nd Drum
METHOD OF PURGE: Submersible pump

PHYSICAL APPEARANCE/COMMENTS
Filled 2nd Drum 14:21, flow stopped.
Wait for Recovery
15:06 Begin pumping
15:14 3rd Drum filled ~ 6 gpm

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
8-17-96 945	~~9.45~~	910	14°C	Clear	-42.5 mV. + 4.8 correction = -37.7 mV	2.8 mg

pH reading off due to malfunction of meter. MS 1/2/97

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, Pb + Zn
Sulfate, Sulfide, Total Phosphorous, TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Enseco-Erco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT - GSIP
PROJECT NO.: 06609V
LOCATION: Industriplex Site, Woburn MA

WELL NUMBER: OW-1A
DATE: 9/16/90
WEATHER: Hot, Sunny
SAMPLED BY: H. Ewart, M. Smith, D. Miller

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal Drum
TIME OF START: 9:53 (pumping)
TIME OF FINISH: 9:57

DEPTH TO BOTTOM OF WELL	25	FT.
DEPTH TO WATER	6.01	FT.
WATER COLUMN	19.99	FT.
VOLUME OF WATER IN WELL	12.40	GAL.
VOLUME OF WATER TO REMOVE	(RE) ~~40~~ 36	GAL.
VOLUME REMOVED	40-45	GAL.

RATE OF PURGE: 12 gpm
METHOD OF PURGE: Centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

Air Monitoring

	Time 1430	1500
OVM	0.0	0.0
LEL	01	01
O_2	20.1	19.9
H_2S	0.2	0.1

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1500	9.95	290	18°C		228.0	6 mg/L

pH reading off due to malfunction of meter
M.S. 1/2/91

correction 4.8 mV
232.8 mV

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, As, Zn
Sulfate, Sulfide, Total Phosphorous, TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Enviro Eco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06609Y
LOCATION: Industri-Plex Site, Woburn, MA

WELL NUMBER: OW-4
DATE: 8/15/91
WEATHER: Sunny + Hot
SAMPLED BY: H. Ernst, D. Miller, M. Smith

TYPE OF WELL: 6" PVC
STORAGE TANK: 55 Gal drums
TIME OF START: 15:18 → 15:30
TIME OF FINISH: 15:30

DEPTH TO BOTTOM OF WELL	44	FT.
DEPTH TO WATER	4.99	FT.
WATER COLUMN	39.01	FT.
VOLUME OF WATER IN WELL	57.30	GAL.
VOLUME OF WATER TO REMOVE	174	GAL.
VOLUME REMOVED	180	GAL. (3×55gal filled + 2 55gal topped off)

RATE OF PURGE: 15-16 gpm
METHOD OF PURGE: Centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS - ~~Collected after sampling due to small amt of water in well~~

TIME	pH	COND	TEMP	TURB	Eh	O^2
1845 ~~1846~~ OK ~~1920~~	~~9.68~~ pH reading off due to malfunction of meter. HKS 1/2/91	700	18°	V. sl. tan brown Cloudy	−58.0 +4.8 correction −53.2mV	1.2 mg/l

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, Ar, Zn
Sulfate, Sulfide, Total Phosphorous, TOC, Cr+6

LABORATORY NAME AND LOCATION

Enviro Eco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 066094
LOCATION: IndustriPlex Site, Woburn, MA

WELL NUMBER: OW-6
DATE: 8/14/90
WEATHER: Partly Cloudy high 80's
SAMPLED BY: M Smith, D. Miller

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal drums
TIME OF START: 9:10 (Sampling)
TIME OF FINISH: 9:35

DEPTH TO BOTTOM OF WELL	16	FT.
DEPTH TO WATER	7.52	FT.
WATER COLUMN	8.48	FT.
VOLUME OF WATER IN WELL	6	GAL.
VOLUME OF WATER TO REMOVE	18	GAL.
VOLUME REMOVED	30	GAL.

RATE OF PURGE: 12 gpm
METHOD OF PURGE: centrif. pump

PHYSICAL APPEARANCE/COMMENTS

Air Monitoring

	Time 9:10	9:35
OVM	0.0	0.0
%LEL	0.0	0.0
O_2	20.6	20.4
H_2S	0.0	0.0

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
9:25	~~11.70~~	600	13°C	very sl. cloudy	191 + 4.8 correction = 195.8 mV	6.4 mg/L

pH reading off due to malfunction of meter md. 1/2/91

TYPES OF SAMPLES COLLECTED

Total + Dissolved	Ba	Sulfate, Sulfide
"	Ar	Total Phosphorous
"	Zn	TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Enseco Erco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-SIP
PROJECT NO.: 066091
LOCATION: Industri-Plex Site, Woburn MA

WELL NUMBER: OW-7
DATE: 5/14/90
WEATHER: Partly Cloudy 80's
SAMPLED BY: D. Miller, M. Smith

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal drum
TIME OF START: 0914 pumping | 1000 sampling
TIME OF FINISH: 0918 | 1015

DEPTH TO BOTTOM OF WELL	32	FT.
DEPTH TO WATER	5.97	FT.
WATER COLUMN	26.03	FT.
VOLUME OF WATER IN WELL	17	GAL.
VOLUME OF WATER TO REMOVE	51	GAL.
VOLUME REMOVED	52	GAL.

RATE OF PURGE: 12 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

Air Monitoring

	Time 1000	1015
OVM	3.0	3.0
% LEL	0	0
% O_2	19.5	19.8
H_2S	0.0	0.0

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
1010	~~8.51~~	470	18°C	clear	158.0 + 4.8 correction = 162.8 mV	2.1 mg/L

pH reading off due to malfunction of meter MA 1/2/91

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, As + Zn
Sulfate, Sulfide, Total Phosphorous, TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Enviro-Tech Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06609Y
LOCATION: Woburn, MA (Industri Plex Site)

WELL NUMBER: OW-9
DATE: 8/16/90 (purging) 8/17/90 (sampling)
WEATHER: Hot (sunny)
SAMPLED BY: A. Smith, A. Ernst

TYPE OF WELL: 6" Steel
STORAGE TANK:
TIME OF START: 1825 — pumping 8/16/90
TIME OF FINISH: 18:50

DEPTH TO BOTTOM OF WELL	123	FT.
DEPTH TO WATER	10.06	FT.
WATER COLUMN	112.94	FT.
VOLUME OF WATER IN WELL	165.89	GAL.
VOLUME OF WATER TO REMOVE	498	GAL.
VOLUME REMOVED	115 not dry	GAL.

RATE OF PURGE: 4.5 gpm
METHOD OF PURGE: submersible pump

22x5gal buckets @ 18:50 well dry
allow to recharge
attempt to pump @ 19:10
+ @ 19:40
no success

PHYSICAL APPEARANCE/COMMENTS

Water Brown

Well sampled following day (8/17) to allow recharge

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
8/17/90 0850	~~4.80~~ pH reading off due to malfunctioning meter MA. 1/2/91	890	13°C 11°C (AE) AK	very slightly cloudy	160 4.8 correction 164.8 mV	7.2 mg/l

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, As, Zn
Sulfate, Sulfide, Total Phosphorous, TOC, Cr+6

LABORATORY NAME AND LOCATION

Enseco Enco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06604Y
LOCATION: Industri Plex Site, Woburn MA

WELL NUMBER: OW-10
DATE: 8/15/90
WEATHER: Hot high 80's, Sunny
SAMPLED BY: H. Frost, M Smith Driller

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal drum
TIME OF START: 10:22 12hr pump
TIME OF FINISH: 16:27

DEPTH TO BOTTOM OF WELL	32.5	FT.
DEPTH TO WATER	4.26	FT.
WATER COLUMN	28.24	FT.
VOLUME OF WATER IN WELL	18.44	GAL.
VOLUME OF WATER TO REMOVE	57	GAL.
VOLUME REMOVED	60-65	GAL.

RATE OF PURGE: 12-13 gpm
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1300	~~7.1~~	~~[illegible]~~ 60	17°C	clear	302.8 mV + 4.8 correction = 307.6 mV	~~[illegible]~~ 8.8 mg.

pH reading ~~[illegible]~~ due to malfunction of meter
MA 1/2/91

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, As, Zn
Sulfate, Sulfide, Total Phosphorous, TDL, Cr^{+6}

LABORATORY NAME AND LOCATION

Ensco-Erco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 066094
LOCATION: Industri Plex Site, Woburn MA

WELL NUMBER: OW-11
DATE: 8/15
WEATHER: Sunny & hot
SAMPLED BY: H. Ewed, M Smith D Miller

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal drum
TIME OF START: 0959 pumping
TIME OF FINISH: 1005

DEPTH TO BOTTOM OF WELL	42	FT.
DEPTH TO WATER	3.88	FT.
WATER COLUMN	39.12	FT.
VOLUME OF WATER IN WELL	24.88	GAL.
VOLUME OF WATER TO REMOVE	75	GAL.
VOLUME REMOVED	75.	GAL.

RATE OF PURGE: 1.53 gpm
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1125	~~8.50~~ pH reading off due to malfunction of meter MJ 1/2/91	380	15°C	v.sl. turbid	34.5 mV. + 4.8 correction = 39.3 mV	2.9 mg/L

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, Ar, Zn
Sulfate, Sulfide, Total Phosphorous, TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Enseco-Eco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06609Y
LOCATION: Industri Plex Site, Woburn MA

WELL NUMBER: OW-12
DATE: 8/15/90
WEATHER: Hot + Sunny
SAMPLED BY: DMiller, AEind, MSmith

TYPE OF WELL: 4" PVC
STORAGE TANK: 55gal
TIME OF START: 10:55 | 11:05 - 11:10
TIME OF FINISH: 14:00 | 11:30

DEPTH TO BOTTOM OF WELL	52	FT.
DEPTH TO WATER	6.68	FT.
WATER COLUMN	45.32	FT.
VOLUME OF WATER IN WELL	29.58	GAL.
VOLUME OF WATER TO REMOVE	90	GAL.
VOLUME REMOVED	100-110	GAL.

RATE OF PURGE: 10-12 gpm
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1405	~~9.18~~	3610	15.5	Cloudy gray black color	-60.9 mV + 4.8 correction = -56.1 mV	2-8 mg

pH reading off due to malfunction of meter MX 1/2/91

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, As, Zn
Nitrate, Sulfate, Total Phosphorous, TOC, Cr+6

LABORATORY NAME AND LOCATION

Enseco-Erco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06604Y
LOCATION: IndustriPlex Site, Woburn, MA

WELL NUMBER: OW-13
DATE: 8/15/90
WEATHER: Hot, Sunny
SAMPLED BY: H. Ernst, M. Smith, D. Ailk.

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal drum
TIME OF START: 13:47 — pumping
TIME OF FINISH: 13:52

DEPTH TO BOTTOM OF WELL	33.5	FT.
DEPTH TO WATER	~~22~~ 3.54	FT.
WATER COLUMN	29.96	FT.
VOLUME OF WATER IN WELL	19.56	GAL.
VOLUME OF WATER TO REMOVE	60	GAL.
VOLUME REMOVED	70-75	GAL.

RATE OF PURGE: 15 gpm
METHOD OF PURGE: Centrifugal pump

PHYSICAL APPEARANCE/COMMENTS: Pieces of grass in well water

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
18:15	~~9.15~~ pH reading off due to malfunction of meter MS 1/2/91	950	22°C	very slightly cloudy	-124.5 mV 4.8 mV -119.7 mV	1.7 mg/L

correction

TYPES OF SAMPLES COLLECTED

Total - Dissolved Ba, Fe, Zn
Sulfate, Sulfide, Total Phosphorous, TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Enseco-Erco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 066014
LOCATION: Industri Plex Site, Woburn MA

WELL NUMBER: OW-14
DATE: 8/16/90
WEATHER: Sunny 85m
SAMPLED BY: D Miller, M Smith

TYPE OF WELL: 4" PVC
STORAGE TANK:
TIME OF START: 8:46 - pumping
TIME OF FINISH: 8:54

DEPTH TO BOTTOM OF WELL	50	FT.
DEPTH TO WATER	6.69	FT.
WATER COLUMN	43.31	FT.
VOLUME OF WATER IN WELL	28.27	GAL.
VOLUME OF WATER TO REMOVE	87	GAL.
VOLUME REMOVED	96	GAL.

RATE OF PURGE: ~12 gpm
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1105	~~7.65~~	620	15°	Clear	201.1 + 4.8 correction = 205.9 mV	3.8 mg/l

pH reading off due to malfunction of meter. MA 1/2/91

TYPES OF SAMPLES COLLECTED

Total - Dissolved Ba, As, Zn
Sulfate, Sulfide, Total Phosphorus, TOC, Cr+6

LABORATORY NAME AND LOCATION

Enseco-Erco Lab
Cambridge MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06609Y
LOCATION: Industri Plex Site, Woburn, MA

WELL NUMBER: OW-15
DATE: 8-16-90
WEATHER: Sunny, warm
SAMPLED BY: M. Smith, J. Miller

TYPE OF WELL: 6" PVC
STORAGE TANK: 55 gal drum
TIME OF START: 7:35 - purging
TIME OF FINISH: 7:44

DEPTH TO BOTTOM OF WELL	28	FT.
DEPTH TO WATER	3.88	FT.
WATER COLUMN	24.12	FT.
VOLUME OF WATER IN WELL	35.43	GAL.
VOLUME OF WATER TO REMOVE	108	GAL.
VOLUME REMOVED	110	GAL.

RATE OF PURGE: ~12 gpm
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
10:39	~~4.06~~	790	15°	clear	257.0 4.8 correction 261.8 mV	4.7 mg/L

pH reading off due to malfunction of meter MA 1/2/91

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, As, Zn
Sulfate, Sulfide, Tot. Phosphorous, TOC, Cr+6

LABORATORY NAME AND LOCATION

Enviro-Eco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 06609Y
LOCATION: Industri Plex Site, Woburn, MA

WELL NUMBER: OW-16
DATE: 8/17/90
WEATHER: Hot, Sunny
SAMPLED BY: H Ecast, M. Smith

TYPE OF WELL: 4" PVC
STORAGE TANK:
TIME OF START: 11:25 pumping
TIME OF FINISH: 11:32

DEPTH TO BOTTOM OF WELL	35.7	FT.
DEPTH TO WATER	3.32	FT.
WATER COLUMN	32.38	FT.
VOLUME OF WATER IN WELL	21.14	GAL.
VOLUME OF WATER TO REMOVE	66	GAL.
VOLUME REMOVED	75	GAL. 15 x 5 gal buckets

RATE OF PURGE: 10-12 gpm
METHOD OF PURGE: ~~centrifugal pump~~

PHYSICAL APPEARANCE/COMMENTS

brown color, strong odor of hides

FIELD MEASUREMENTS

TIME (Sampling)	pH	COND	TEMP	TURB	Eh	O^2
12:20	~~7.75~~	~~15000~~ HL 15790	15°C	slightly cloudy	—	1 mg/l

pH reading off due to malfunction of meter 1/2/91

Instr. not working

TYPES OF SAMPLES COLLECTED

Total - Dissolved Fe, Mn, Zn
Sulfate, Sulfide, Total Nitrogen, TOC, pH

LABORATORY NAME AND LOCATION

Enseco-Ecc Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 066095
LOCATION: Industri-Plex Site, Woburn MA

WELL NUMBER: OW-17
DATE: 8/14/90
WEATHER:
SAMPLED BY: H. Ford, D. Miller, M. Smith

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal Drum
TIME OF START: 1455 (pumping)
TIME OF FINISH: 17:59 (1st run, well dry)
Final Finish 1545

DEPTH TO BOTTOM OF WELL	30	FT.
DEPTH TO WATER	5.58	FT.
WATER COLUMN	24.42	FT.
VOLUME OF WATER IN WELL	16	GAL.
VOLUME OF WATER TO REMOVE	48	GAL.
VOLUME REMOVED	48	GAL.

RATE OF PURGE: 8 gal/min for 1st 4 min then intermittent
METHOD OF PURGE: centrifugal pump

after 1st purge, we waited for recharge, pump was unsteady after this - ~1-3 gpm for 3-4 minute periods.
last time 15:42-15:44 @ 12 gpm

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME	pH	COND	TEMP	TURB	Eh	O^2
16:25	~~9.05~~	4940	16	brown color cloudy	-94.4 mV	5 mg/L
	pH reading off due to malfunction of meter MSt 1/2/91				+ 4.8 correction -89.6 mV	

TYPES OF SAMPLES COLLECTED

Total and Dissolved Fe, Mn, Zn
Sulfate, Sulfide, Total Alkalinity, TDS, [illegible]

LABORATORY NAME AND LOCATION

Cresco-Pico Lab
Cambridge MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 066094
LOCATION: Industri Plex Site, Woburn, MA

WELL NUMBER: OW-18
DATE: 8/15/90
WEATHER: Hot Sunny
SAMPLED BY: H. Ernst, M. Smith, D. Miller

TYPE OF WELL: 6" PVC
STORAGE TANK: 55 gal
TIME OF START: 09:30 — purging
TIME OF FINISH: 09:50

DEPTH TO BOTTOM OF WELL	55	FT.
DEPTH TO WATER	8.36	FT.
WATER COLUMN	46.64	FT.
VOLUME OF WATER IN WELL	19.5	GAL.
VOLUME OF WATER TO REMOVE	207	GAL.
VOLUME REMOVED	210	GAL. 4 x 55 gal

RATE OF PURGE: ~10 gpm
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
~~400 mL~~	~~8.15~~	940	14°C	clear	212.2	4 mg/l
a 30 m bot.	pH reading off due to malfunction of meter MS 1/2/91				4.8 correction	
					217.0 mV	

TYPES OF SAMPLES COLLECTED

Total and Dissolved Ba, Fe, Zn
Sulfate, Sulfide, Total Phosphorus, TOC, Cl⁻

LABORATORY NAME AND LOCATION

Enseco-Inco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06609Y
LOCATION: Industri Plex Site Woburn MA

WELL NUMBER: OW-18A
DATE: 8/17/90
WEATHER: Partly Cloudy, Hot high 80's
SAMPLED BY: H Ernst, D Miller, M Smith

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal. Drum
TIME OF START: 16:27 → Pumping
TIME OF FINISH: 16:28 RD
MC

DEPTH TO BOTTOM OF WELL	15	FT.
DEPTH TO WATER	7.74	FT.
WATER COLUMN	7.26	FT.
VOLUME OF WATER IN WELL	4.73	GAL.
VOLUME OF WATER TO REMOVE	15	GAL.
VOLUME REMOVED	25	GAL.

RATE OF PURGE: 12 gpm
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1715	~~9.95~~	810	16°	Clear	210.5 mV	3.4 mg/l
	pH reading off due to malfunction of meter. MJ 1/12/91				4.8 correction	
					215.3 mV	

TYPES OF SAMPLES COLLECTED

Total and Dissolved Ba, Zn, Fe
Sulfate, Sulfide, Total Phosphorus, TOC, Cl^{+6}

LABORATORY NAME AND LOCATION

Inacon Inco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 066098
LOCATION: Industriplex Site, Woburn, MA

WELL NUMBER: OW-19
DATE: 4/14/90
WEATHER: Partly Cloudy, Hot
SAMPLED BY: H. Ernst, M. Smith, D. Miller

TYPE OF WELL: 6" PVC
STORAGE TANK: 55 gal drums (3 each time, 6 [illegible])
TIME OF START: 10:37 | 11:25
TIME OF FINISH: 10:44 | 11:39

DEPTH TO BOTTOM OF WELL	70	FT.
DEPTH TO WATER	3.46	FT.
WATER COLUMN	66.54	FT.
VOLUME OF WATER IN WELL	97.73 → 98	GAL.
VOLUME OF WATER TO REMOVE	294	GAL.
VOLUME REMOVED	150 + 150 = 300	GAL.

RATE OF PURGE: 12 ~~16~~ gal/min
METHOD OF PURGE: centr.

PHYSICAL APPEARANCE/COMMENTS

no color

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1415	~~9.07~~	450	18°	clear	185.1	
	pH reading off due to malfunction of meter MS 1/2/91				4.8 correction	3 mg/l
					+189.9 mV	

TYPES OF SAMPLES COLLECTED

Total and Dissolved Ba, As, Zn
Sulfate, Sulfide, Total Phosphorus, TOC, Cr+6

LABORATORY NAME AND LOCATION

Enseco-Geo Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06609Y
LOCATION: Industri Plex Site Woburn, MA

WELL NUMBER: MW-19A
DATE: 5/14/90
WEATHER: Sunny, Some Clouds, 80's
SAMPLED BY:

TYPE OF WELL: 4" PVC
STORAGE TANK:
TIME OF START: 0942 1040
TIME OF FINISH: 0948
pumping sampling

DEPTH TO BOTTOM OF WELL	40	FT.
DEPTH TO WATER	3.37	FT.
WATER COLUMN	36.63	FT.
VOLUME OF WATER IN WELL	23.91	GAL.
VOLUME OF WATER TO REMOVE	72	GAL.
VOLUME REMOVED	75	GAL.

RATE OF PURGE: 15 gal/min
METHOD OF PURGE: centrifugal

PHYSICAL APPEARANCE/COMMENTS

almost clear - sl. tan cast

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1055	~~9.0~~ pH reading off due to malfunction of meter MA. 1/2/96	310	18°	v. sl. cloudy	59.4 mV + 4.8 correction = 64.2 mV	1.9 mg/L

TYPES OF SAMPLES COLLECTED

Total and Dissolved Fe, As, Zn
Sulfate, Sulfide, Total Phosphorous, TOC, Cr+6

LABORATORY NAME AND LOCATION

Enseco-Ceco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06609Y
LOCATION: Industri Plex Site, Woburn MA

WELL NUMBER: OW-20
DATE: 8/14/90
WEATHER: Partly Cloudy hot 80's
SAMPLED BY:

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal drums
TIME OF START: 1303 — purging
TIME OF FINISH: 13:35

DEPTH TO BOTTOM OF WELL	99.5	FT.
DEPTH TO WATER	57	FT.
WATER COLUMN	43.9	FT.
VOLUME OF WATER IN WELL	62	GAL.
VOLUME OF WATER TO REMOVE	186 → 190	GAL.
VOLUME REMOVED	5x55 = 220	GAL.

RATE OF PURGE: 8 g/min
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS

Replicate OW-100 - 1435
OW-20 1450

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1450	~~9.30~~	460	14°	Clear	-66.2	1.9 mg/L
	pH reading off due to malfunction of meter MA 1/2/91				+4.8 correction -61.4 mV	

TYPES OF SAMPLES COLLECTED

~~Total~~ and Dissolved Ba, As, Zn
Sulfate, Sulfide, Total Phosphorus, TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Inacon Geo Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT
PROJECT NO.: 06609Y
LOCATION: Industri Plex Site, Woburn MA

WELL NUMBER: OW-21
DATE: 9/15/90
WEATHER: Sunny, Hot
SAMPLED BY: H Ernst, A Smith

TYPE OF WELL: 4" PVC
STORAGE TANK: 55 gal drum
TIME OF START: 13:19 pumping
TIME OF FINISH: 13:24

DEPTH TO BOTTOM OF WELL	17.55	FT.
DEPTH TO WATER	5.01	FT.
WATER COLUMN	12.54	FT.
VOLUME OF WATER IN WELL	8.13	GAL.
VOLUME OF WATER TO REMOVE	27	GAL.
VOLUME REMOVED	30 gal (more than 1/2 of 55 drum)	GAL.

RATE OF PURGE: 1st 1½ min ~12 gpm, next 4 min ~6 gpm
METHOD OF PURGE: centrifugal pump

PHYSICAL APPEARANCE/COMMENTS: Rep. OW-101 1735
OW-21 1715

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
17:35	~~9.30~~	320 µmhos/cm	20°C	sl. cloudy	92.4	5.6 mg/l
	pH reading off due to malfunction of meter MA 1/2/91				4.8 correction 97.2 mV	

TYPES OF SAMPLES COLLECTED

Total and Dissolved Ba, As, Zn
Sulfate Sulfide, Total Phosphorus, TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Cancer Eco Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 066094.1
LOCATION: Industri-Plex Site, Woburn, MA

WELL NUMBER: OW-22
DATE: 8/17/90
WEATHER: Hot, Sunny
SAMPLED BY: M. Smith

TYPE OF WELL: 2" PVC
STORAGE TANK: —
TIME OF START: 9:30
TIME OF FINISH: 10:00

DEPTH TO BOTTOM OF WELL	16.6	FT.
DEPTH TO WATER	9.23	FT.
WATER COLUMN	7.39	FT.
VOLUME OF WATER IN WELL	1.21	GAL.
VOLUME OF WATER TO REMOVE	4.5	GAL.
VOLUME REMOVED	5	GAL.

RATE OF PURGE: —
METHOD OF PURGE: bailer

PHYSICAL APPEARANCE/COMMENTS

FIELD MEASUREMENTS

TIME (sampling)	pH	COND	TEMP	TURB	Eh	O^2
1140	~~7.44~~	1890	15°	tan-yellow v. cl. clouds	instrument not working	3.1 mg/L

pH reading off due to malfunction of meter MS 1/2/91

TYPES OF SAMPLES COLLECTED

Total + Dissolved Ba, Fe, Zn
Sulfate, Sulfide
Total Phosphorus, TOC, Cl⁻

LABORATORY NAME AND LOCATION

Enseco-Cuo Lab
Cambridge, MA

ROUX Consulting Ground-Water Geologists
ROUX ASSOCIATES INC

WELL SAMPLING DATA FORM

CLIENT: ISRT-GSIP
PROJECT NO.: 066094
LOCATION: Industri Plex Site, Woburn, MA

WELL NUMBER: OW-28
DATE: 8-15-90
WEATHER: Sunny, hot
SAMPLED BY: M. Smith

TYPE OF WELL: 4" PVC
STORAGE TANK:
TIME OF START: bailed @ 0820
TIME OF FINISH:

DEPTH TO BOTTOM OF WELL	11.5	FT.
DEPTH TO WATER	9.25	FT.
WATER COLUMN	2.25	FT.
VOLUME OF WATER IN WELL	1.5	GAL.
VOLUME OF WATER TO REMOVE	4.5	GAL.
VOLUME REMOVED	≈2.0 gal until dry	GAL.

RATE OF PURGE:
METHOD OF PURGE: bailed

PHYSICAL APPEARANCE/COMMENTS

Time of sampling - 16:40

FIELD MEASUREMENTS Collected after ~~sampling~~ bailing MC due to poor recovery of well

TIME ~~(sampling)~~ md.	pH	COND	TEMP	TURB	Eh	O^2
1915	~~12.69~~	90	18°	V-sl. Cloudy	249.4 mV. + 4.8 correction = 254.2 mV	9 mg/L

pH reading off due to malfunction of meter md. 1/2/91

TYPES OF SAMPLES COLLECTED

Total + Dissolved	Ba	Sulfate, Sulfide
"	Ar	Total Phosphorus
"	Zn	TOC, Cr^{+6}

LABORATORY NAME AND LOCATION

Enseco Eco Lab
Cambridge, MA

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 5. Ground-Water Sampling Logs and Chain of Custody Forms

Part 2. Ground-Water Sampling Chain of Custody Forms

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Joanne Yeary / Jeff Day

Sample Designation/Location	Date Collected	Time Collected	TOC in 40 ml glass vial preserved with H_2SO_4 chilled to 4°C	TCL volatile organic compounds in 40 ml glass vial preserved with HCl chilled to 4°C	TSS sulfate, chloride, cr+6 in 1qt poly bottle chilled to 4°C	Sulfide in 500 ml poly bottle preserved with NaOH, Zn(CH3CO2)2 chilled to 4°C	COD, phosphate in 500 ml poly jar preserved with H_2SO_4 chilled to 4°C	TCL PCB's TCL pesticides in 1 liter amber glass bottle chilled to 4°C	TOTAL BOTTLES	NOTES
OW-12	3-15-90	1000	2	3	1	1	1	1	9	
OW-14	3-15-90	1145	2	3	1	1	1	1	9	
OW-18A	3-15-90	1315	2	3	1	1	1	1	9	
OW-17	3-15-90	1420	2 (*)	3 (*)	1	1	1	1	9	(*) No preservative in VOA vials
OW-18	3-15-90	1600	2	3	1	1	1	1	9	
									45	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Joanne Yeary	Roux	3-15-90	1930	Jeffrey A. Day	Roux	3/15/90	1930
Jeffrey A. Day	Roux	3/15/90	2025	Joanne Attem	Ensco	3-15-90	2025

Delivery Method	Comments
Hand Delivered	Chilled

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Project Name: ISRT-GSIP
Project Number: 066097
Project Location: Woburn, MA
Sampler(s): Joanne Yeary / [illegible]

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi Volatiles in 1 liter glass amber bottle chilled to 4°C	TCL metals, hardness, Fe, Fe+2 can be filtered in 500 ml poly preserved in HNO3 chilled to 4°C	TCL metals, hardness, Fe, Fe+2, Ca, Cr in 500 ml poly preserved in HNO3 chilled to 4°C				TOTAL BOTTLES	NOTES
OW-12	3-15-90	1000	1	1	1				3	
OW-14	3-15-90	1145	1	1	1				3	
OW-18A	3-15-90	1315	1	1	1				3	
OW-17	3-15-90	1420	1	1	1				3	
OW-18	3-15-90	1600	1	1	1				3	
									15	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Joanne Yeary	Roux	3-15-90	1930	[illegible]	Roux	3/15/90	1930
[illegible]	Roux	3/15/90	2025	Joanne Allowin	Enseco	3-15-90	20:25
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand Delivered

Comments: Chilled

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Project Name: FSRT - GSIP

Project Number: 066099

Project Location: Woburn, MA

Sampler(s): Jeffrey Fay, Joanne Young, Jeff Dai

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TOC in 40 ml glass vial preserved with H_2SO_4 chilled to 4°C	TCL volatile organic compounds in 40 ml glass vial preserved with HCl chilled to 4°C	TSS Sulfate chloride Cr in 1 liter poly bottle preserved chilled to 4°C	Sulfide in 500 ml poly bottle preserved with $Zn(CH_3CO_2)_2$ chilled to 4°C	COD phosphate in 500 ml poly bottle preserved with H_2SO_4 chilled to 4°C	TCL PCB's TCL pesticides in 1 liter amber glass bottle chilled to 4°C	TOTAL BOTTLES	NOTES
OW-6	3-16-90	0900	2	3	1	1	1	1	9	
OW-20	3-16-90	1240	2	3	1	1	1	1	9	
OW-19A	3-16-90	1430	2	3	1	1	1	1	9	
FB-GW	3-16-90	1550	2	3	1	1	1	1	9	
OW-19	3-16-90	1640	2	3	1	1	1	1	9	
									45 + 2 Trip Blanks	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Jeff Fay	Roux	3/16/90	1915	Mercia Motta		3/16/90	19:17
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand Delivered

Comments: Chilled, Trip Blanks contained bubbles (both VOA vials)

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HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP
Project Number: 066609Y
Project Location: Woburn MA
Sampler(s): Joanne Yeary, Jeff Day

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi volatiles in 1 liter Glass amber bottle chilled to 4°C	TCL metals, hardness, Fe, Fe+2, Cu, Cr filtered & preserved in HNO3 chilled to 4°C	TCL metals, hardness, Fe+2, Cu, Cr in 1 liter poly bottle preserved in HNO3 chilled to 4°C				TOTAL BOTTLES	NOTES
OW-6	3-16-90	0900	1	1	1				3	
OW-20	3-16-90	1240	1	1	1				3	
OW-19A	3-16-90	1430	1	1	1				3	
FB-GW	3-16-90	1550	1	1	1				3	
OW-19	3-16-90	1640	1	1	1				3	
									15	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Jeff Day	ROUX	3/16/90	1915	Marcia Motta		3/16/90	19:17
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand Delivered

Comments: Chilled

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Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yeany, J. Daly

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TOC in 40 ml glass vial, Preserved with H_2SO_4, Chilled to 4°C	TCL volatile organic compounds in 40 ml glass vial preserved with HCl, chilled to 4°C	TSS, sulfate, chloride, Fe in 1 liter poly bottle Chilled to 4°C	Sulfide in 500 ml poly bottle preserved with NaOH, Zn($C_4H_6O_4$)$_2$, chilled to 4°C	COD, phosphate in 500 ml poly bottle, preserved with H_2SO_4, Chilled to 4°C	TCL PCBs + TCL pesticides in 1 liter amber glass bottle, Chilled to 4°C	TOTAL BOTTLES	NOTES
OW-99	3-19-90	1300	2	3	1	1	1	1	9	
OW-1A	3-19-90	1700	2	3	1	1	1	1	9	
Trip Blank #2	3-19-90			1					1	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	3-19-90	1900	[signature]	ROUX	[illegible]	[illegible]
[signature]	ROUX	3/19/90	1945	William H. McNamara	ENSECO	3/19/90	1945

Delivery Method: Hand Delivered

Comments: Chilled

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HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn MA
Sampler(s): J. Yeary, J. Day

Sample Designation/Location	Date Collected	Time Collected	TCL Semi-volatiles in 1 liter amber glass bottle Chilled to 4°C	TCL Metals, hardness, Fe, Fe2 Cr in 1 liter poly bottle filtered, preserved with HNO3, Chilled to 4°C	TCL Metals, hardness, Fe, Fe2 Cr in 1 liter poly bottle Preserved with HNO3, Chilled to 4°C				TOTAL BOTTLES	NOTES
OW-99	3-19-90	1300	1	1	1				3	
OW-1A	3-19-90	1700	1	1	1				3	
										25 bottles total.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	3-19-90	1900	[signature]	ROUX	3/19/90	1913
[signature]	ROUX	3/19/90	1945	[signature]	ENSECO	3/19/90	1945

Delivery Method: Hand Delivered.

Comments: Chilled

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HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 066094

Project Location: Woburn, MA

Sampler(s): J. Yeo, Joanne Yeo, J. Day

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TOC in 40 ml glass vial preserved with H_2SO_4, chilled to 4°C	TCL volatile organics in 40 ml glass vial, preserved with HCL, chilled to 4°C	TSS, sulfate, chloride, TKN, in 1 liter poly bottle, chilled to 4°C	Sulfide in 500 ml poly bottle, preserved with NaOH, Zn(C2H3O2)2, chilled to 4°C	COD phosphate in 500 ml poly bottle, preserved with H_2SO_4, chilled to 4°C	TCL PCBs + TCL pesticides in 1 liter amber glass bottle, chilled to 4°C	TOTAL BOTTLES	NOTES
OW-9	3-19-90	1230	2	3	1	1	1	1	9	
OW-4	3-19-90	0930	2	3	1	1	1	1	9	
OW-13	3-19-90	1420	2	3	1	1	1	1	9	
OW-15	3-19-90	1030	2	3	1	1	1	1	9	
Trip Blank				1					1	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Jeffrey A. Day	ROUX	3/19/90	1945	William F. McNamara	ENSECO	3/19/90	1945
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand Delivered

Comments: Chilled

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Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Young Yeary, J. Dan

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL semi-volatiles in 1 liter amber glass bottles Chilled to 4°C	TCL Metals, hardness, Fe, Cr in 1 liter poly bottle filtered, preserved with HNO3	TCL Metals, hardness, Fe, Cr in 1 liter poly bottle preserved with HNO3, Chilled to 4°C				TOTAL BOTTLES	NOTES
OW-9	3-19-90	1230	1	1	1				3	
OW-4	3-19-90	0930	1	1	1				3	
OW-13	3-19-90	1420	1	1	1				3	
OW-15	3-19-90	1030	1	1	1				3	
										49 bottles TOTAL

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	3/19/90	1945	William H. McNamara	ENSECO	3/19/90	1945
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand Delivered
Comments: Chilled

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HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s): Joanne Yeary, M. Smith, Marlina Smith

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TOC in 40 ml glass vial preserved with H_2SO_4, chilled to 4°C.	TCL volatile organic compounds in 40 ml glass vial; preserved with HCl, chilled to 4°C.	TSS, sulfate, chloride, Cr+6 in 1 liter poly bottle; chilled to 4°C.	Sulfide in 500 ml poly bottle, preserved with $Zn(C_2H_3O_2)_2$, chilled to 4°C.	COD, phosphate in 500 ml poly bottle, preserved with H_2SO_4, chilled to 4°C.	TCL PCBs and TCL pesticides in 1 liter amber glass bottle, chilled to 4°C.	TOTAL BOTTLES	NOTES
OW-1	3-20-90	1000	2	3	1	1	1	1	9	In igloo cooler
OW-11	3-20-90	1345	2	3	1	1	1	1	9	In GOTT cooler
OW-10	3-20-90	1130	2	3	1	1	1	1	9	In igloo cooler
OW-16	3-20-90	1500	2 (*)	3 (*)	1	1	1	1	9 (*)	NOT preserved - GOTT cooler
Trip Blank #3	3-20-90								1	In GOTT cooler
Trip Blank #4	3-20-90								1	In igloo cooler
									38	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Joanne Yeary	ROUX	3-20-90	2015	[illegible]	ENSECO	1/0/[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand Delivered

Comments: Chilled

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Joanne Yearly, M. Smith, Martha Smith

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi-volatiles in 1 liter amber glass bottle, chilled to 4°C.	TCL metals, hardness, Fe, Fe+Cr in 1 liter poly bottle preserved with HNO_3, chilled to 4°C.	TCL metals, hardness, Fe, Fe+Cr in 1 liter poly bottle preserved with HNO_3, chilled to 4°C. FILTERED				TOTAL BOTTLES	NOTES
OW-1	3-20-90	1000	1	1	1				3	In igloo cooler
OW-11	3-20-90	1345	1	1	1				3	In GOTT cooler
OW-10	3-20-90	1130	1	1	1				3	In igloo cooler
OW-16	3-20-90	1500	1	1	1				3	In GOTT cooler
									12	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Joanne Yearly	Roux	3-20-90	2015	Paula [illegible]	ERS Co	3/20/90	2015
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand Delivered

Comments: Chilled

Note: Trip Blank in each cooler — samples are divided between two coolers and cooler notation is included for QAQC. M.S. 3-21-90

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HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609V

Project Location: Woburn, MA

Sampler(s): J. Yeary, M. Smith, M. Smith

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TOC in 40 ml glass vial chilled to 4°C	TCL volatile organic compounds in 40 ml glass vial; preserved with HCl; chilled to 4°C	TSS, sulfate, chloride, Cr+6 in 1 liter poly bottle; chilled to 4°C	Sulfide in 500 ml poly bottle; preserved with NaOH, Zn $(C_2H_3O_2)_2$; chilled to 4°C	COD, phosphate in 500 ml poly bottle; preserved with H_2SO_4; chilled to 4°C	TCL PCBs + TCL pesticides in 1 liter amber glass bottle; chilled to 4°C	TOTAL BOTTLES	NOTES
OW-21	3-21-90	1000	2	3	1	1	1	1	9	
EB-GW2	3-21-90	1100	2	3	1	1	1	1	9	
OW-100	3-21-90	1030	2	3					5	
TRIP BLANK #5	3-21-90			1					1	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	3-21-90	1640	[signature]	ENSECO-ERCO	3/21/90	1840
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT- GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yeary M. Smith M. Smith

Sample Designation/Location	Date Collected	Time Collected	TCL semi-volatiles in 1 liter amber glass bottle; Chilled to 4°C	TCL metals, hardness, Ca, Cr in 1 liter poly bottle; filtered; preserved with HNO3; Chilled to 4°C	TCL Metals, hardness, Ca, Cr in 1 liter poly bottle; preserved with HNO3; Chilled to 4°C				TOTAL BOTTLES	NOTES
OW-21	3-21-90	1000	1	1	1				3	
FB-GW2	3-21-90	1100	1	1	1				3	
OW-100	3-21-90	1030								
										30 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	3-21-90	1640	[illegible]	ENSECO-EXCO	3/21/90	1810

Delivery Method: hand delivered

Comments:

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775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Young, M. Smith, M. Smith

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TSS, sulfate, chloride, Cr+6 in 1 liter poly bottle; Chilled to 4°C	Sulfide in 500 ml poly bottle; preserved with NaOH, Zn(C2H3O2)2; Chilled to 4°C	COD, phosphate, in 500 ml poly bottle; preserved with H2SO4; chilled to 4°C	TCL PCBs + TCL pesticides in 1 liter amber glass bottle; Chilled to 4°C	TCL metals, hardness, Fe, Fe+2, Cr+6 in 1 liter poly bottle; Preserved with HNO3; Chilled to 4°C	TCL metals, hardness, Fe, Fe+2, Cr+6 in 1 liter poly bottle; filtered, preserved with HNO3; Chilled to 4°C	TOTAL BOTTLES	NOTES
OW-100	3-21-90	1030	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	3-21-90	1840	[signature]	ERCO	3/21/90	1840

Delivery Method: hand delivered

Comments:

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ANALYSES

Project Name: ISRT - GSIP
Project Number: 066097
Project Location: Woburn, MA
Sampler(s): J. Yeary M. Smith M. Smith

Sample Designation/Location	Date Collected	Time Collected	TCL Semi-volatiles in 1 liter amber glass bottles Chilled to 4°C						TOTAL BOTTLES	NOTES
OW-100	3-21-90	1030	1						1	
										7 bottles total in Cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	ROUX	[illegible]	1840	[illegible]	ENSECO ERCO	3/21/90	1840
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

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Comments:

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Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Young, Melanie Young, M. Smith, M. Smith

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TOC in 40 ml glass vial preserved with H_2SO_4	TCL Volatile organic compounds in 40 ml glass vial, preserved with HCl, chilled to 4°C	TSS, sulfate, chloride, cyanide in 1 liter poly bottle, chilled to 4°C	Sulfide in 500 ml poly bottle, preserved with NaOH, Zn $(C_2H_3O_2)_2$, chilled to 4°C	COD, phosphate in 500 ml poly bottle, preserved with H_2SO_4, chilled to 4°C	TCL PCBs + TCL pesticides in 1 liter amber glass bottles, chilled to 4°C	TOTAL BOTTLES	NOTES
OW-22	3-21-90	1200	2	3	1	1	1	1	9	
OW-28	3-21-90	1400		*3					3	* Do not analyze until given okay from Roux Associates.
TRIP BLANK #6	3-21-90			1					1	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	3-21-90	1840	[illegible]	Erco (Lab)	3/21/90	1810

Delivery Method	Comments
hand delivered	

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Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yang M. Smith M. Smith

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL semi-volatiles in 1 liter amber glass bottle, Chilled to 4°C	TCL metals, hardness, Fe, Fe+2, Cr, Cr+6 in 1 liter poly bottle, Chilled, preserved with HNO3	TCL metals, hardness, Fe, Fe+2, Cr, Cr+6 in 1 liter poly bottle, Chilled to 4°C	TOC in 40 ml glass vial Chilled to 4°C			TOTAL BOTTLES	NOTES
OW-22	3-21-90	1200	1	1	1				3	
OW-28	3-21-90	1400		1	1	*2			4	* Do not analyze until given okay from Roux Associates.
										20 bottles total in cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	3-21-90	1840	[signature]	Eusco Eco Lab	3/21/90	1840
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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ANALYSES

Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Yeary, E. Jorgensen, E. Jorgison

Sample Designation/Location	Date Collected	Time Collected	TCL volatile organic compounds in 40 ml glass vial, with HCl, chilled, preserved	Release Neutral/Acid Extractables in 1 liter amber glass bottle, chilled	TCL pesticides and TCL PCBs in 1 liter amber glass bottle, chilled	TCL metals, Zn, Cr, Ni, Hexavalent Cr in 500 ml poly bottle, preserved with HNO_3, chilled	TCL metals, Zn, Cr, Ni, Hexavalent Cr in 500 ml poly bottle, filtered, preserved with HNO_3, chilled	Sulfate, Chloride, Carbonate, Bicarbonate, Cyanide, TSS in 1 liter poly bottle, chilled	TOTAL BOTTLES	NOTES
GW-FB3	4-25-90	1450		1	1	1	1	1	5	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Erin M Jorgensen	ROUX	4/25/90	2125	[illegible]	ERCO	4/25/90	2125
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Ground-water (well) samples

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Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Yeary, E. Jorgensen, E. Jorgison

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 250 ml poly bottle; preserved with NaOH and Zinc Acetate; chilled	Phosphate, COD in 1 liter poly bottle; chilled	Total Organic Carbon in 40 ml vial; preserved with HCl; chilled				TOTAL BOTTLES	NOTES
GW-FB3	4-25-90	1450	1	1	2				4	

9 bottle total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric Jorgensen	ROUX	4/25/90	2125	[illegible]	ERCO	4/25/90	2125
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Ground-water (well) samples
Phosphate, COD bottle should be preserved with H_2SO_4 upon arrival at lab - Mod 4/25/90

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Project Name: ISRT - GSIP

Project Number: 066094

Project Location: Woburn, MA

Sampler(s): J. Yeary, E. Jorgson, E. Jorgson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL volatile organic compounds in 40 ml glass vial, preserved with HCl, chilled	TCL Base Neutral/Acid Extractables in 1 liter amber glass bottle, chilled	TCL metals, Fe, Cr, hardness in second poly bottle, preserved with HNO_3, chilled	TCL metals, Fe, Cr, hardness in 500 ml poly bottle, preserved with HNO_3, chilled	TCL pesticides and TCL PCBs in 1 liter amber glass bottle, chilled	Sulfate, chloride, carbonate, bicarbonate, Cr(6), TSS in 1 liter poly bottle, chilled	TOTAL BOTTLES	NOTES
OW-7	4-25-90	1500	3	1	1	1	1	1	8	
OW-101	4-25-90	1510		1	1	1	1	1	5	
GW-FB-3	4-25-90	1450	3						3	
OW-17	4-25-90	1400	3						3	
Trip Blank #8	4-25-90		1						1	
									20	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric M Jorgenson	ROUX	4/25/90	2125	[illegible]	ZPK	ERCO	4/25/90 2125
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Ground-water (well) samples

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Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Yeary, E. Jorgerson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 500ml poly bottle; preserved with H_2SO_4 ~~and NaOH~~; chilled	Phosphate, COD in 500ml poly bottle; preserved with H_2SO_4; chilled	Total Organic Carbon in 40ml vial; ~~preserved with H_2SO_4~~; chilled	TCL volatile organic compounds in 40ml glass vial; Chilled			TOTAL BOTTLES	NOTES
OW-7	4-25-90	1500	1	1	2				4	
OW-101	4-25-90	1510	1	1	2	3			7	
~~OW-FB3~~	~~4-25-90~~	~~1450~~								
										31 bottles total in cooler
									11	

nd. 4-25-90 RE

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric Jorgerson	ROUX	4/25/90	2125	[illegible] RPA	ERCO	4/25/90	2125
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Ground-water (well) samples
No preservative in TOC bottles; H_2SO_4 in Sulfide bottle

M.A. 4-26-90 Incorrect preservative in sulfide bottles - unusable for analysis. Lab took

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ANALYSES

Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Lockport, NY

Sampler(s): Martha Smith, Dave Miller

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
GW-OW-6	8-14-90	0910	1	1	1	1	1	2	7	
GW-OW-7	8-14-90	1010	1	1	1	1	1	2	7	
GW-OW-19A	8-14-90	1055	1	1	1	1	1	2	7	
GW-OW-19	8-14-90	1415	1	1	1	1	1	2	7	
GW-OW-100	8-14-90	1435	1	1	1	1	1	2	7	
GW-OW-20	8-14-90	1450	1	1	1	1	1	2	7	
GW-OW-17	8-14-90	1625	1	1	1	1	1	2	7	
GW-OW-18A	8-14-90	1715	1	1	1	1	1	2	7	

56 Bottles total in coolers

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	8/14/90	20:30	Emily Gibelhorn	ERCO	8-14-90	20:30
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

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ANALYSES

Project Name: ISRT- GSIP

Project Number: 06694

Project Location: Lexington, MA

Sampler(s): Martha Smith, Diane Miller

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
GW-OW-13	8/15/90	18:15	1	1	1	1	1	2	7	
GW-OW-21	8/15/90	17:15	1	1	1	1	1	2	7	
GW-OW-28	8/15/90	16:40	1	1	1	1	1	2	7	
GW-OW-4	8/15/90	18:45	1	1	1	1	1	2	7	
GW-OW-101	8/15/90	17:35	1	1	1	1	1	2	7	
										35 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	8/15/90	20:40	Marcia Motta	Enseco	8/15/90	20:40
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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ANALYSES

Page 1 of 1

Project Name: ISRT-GSIP

Project Number: 066094

Project Location: Woburn MA

Sampler(s): M. Smith, D. Miller, H. Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
GW-OW-18	8-15-90	0930	1	1	1	1	1	2	7	
GW-FB-1	8-15-90	1145	1	1	1	1	1	2	7	
GW-OW-11	8-15-90	1225	1	1	1	1	1	2	7	
GW-OW-10	8-15-90	1255	1	1	1	1	1	2	7	
GW-OW-12	8-15-90	1405	1	1	1	1	1	2	7	
										35 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	8/15/90	2040	Marcia A. Motta	Enseco	8/15/90	20:40
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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ANALYSES

Page 1 of 1

Project Name: ISRT-GSIP
Project Number: 06094
Project Location: Lawrence MA
Sampler(s): M. Smith D. Miller

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
GW-OW-15	8-16-90	10:30	1	1	1	1	1	2	7	
GW-OW-14	8-16-90	11:05	1	1	1	1	1	2	7	
GW-OW-1A	8-16-90	1500	1	1	1	1	1	2	7	
GW-OW-1A MS	8-16-90	1500	1	1	1	1	1	2	7	Matrix Spike Set
GW-OW-1A MSD	8-16-90	1500	1	1	1	1	1	2	7	Matrix Spike Dup. Set
GW-FB-2	8-16-90	1900	1	1	1	1	1	2	7	

42 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M Smith	ROUX	8-16-90	2130	[illegible]	ERCO-ERCO	8/16/90	2130
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

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ANALYSES

Project Name: ISRT-GSIP
Project Number: 01.4.5.14
Project Location: Woburn, MA
Sampler(s): M. Smith, D. Miller, H. Ernst

Sample Designation/Location	Date Collected	Time Collected	VOC	SVOC	Metals	Pesticides	PCB	Total Phosphorous	TOTAL BOTTLES	NOTES
GW-OW-9	8-17-90	0850	1	1	1	1	1	2	7	Total Phosphorous in 500 ml poly bottle.
GW-OW-1	8-17-90	0945	1	1	1	1	1	2	7	
GW-OW-22	8-17-90	1140	1	1	1	1	1	2	7	
GW-OW-16	8-17-90	1225	1	1	1	1	1	2	7	Total Phosphorous in 500 ml poly bottle. TOC not preserved

28 bottles total in cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M Smith	ROUX	8-17-90	1355	Michael D Kosinski	EICO	8/17/90	1355
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

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ANALYSES

Page of

Project Name: TSRT-EPIP

Project Number: 0666.91

Project Location: Woburn MA

Sampler(s): [illegible]

Sample Designation/Location	Date Collected	Time Collected	Total Metals Suite of As, Fe, Pb, organics forms of Sn, Hg & 250 ml water glass, chilled to 4°C						TOTAL BOTTLES	NOTES
OW-12	3-15-90	1000	1						1	
OW-14	3-15-90	1145	1						1	
OW-18A	3-15-90	1315	1						1	
OW-17	3-15-90	1420	1						1	
OW-18	3-15-90	1600	1						1	
									5	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	3-15-90	1900				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
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ANALYSES

Page of

Project Name: ISRT-GSIP
Project Number: 066009Y
Project Location: Woburn, MA
Sampler(s): Joanne Yeary, Jeff Dan

Sample Designation/Location	Date Collected	Time Collected	Total and valence states of As, Hg, Pb. Organo forms of Hg, As 2-250ml amber glass chilled to 4°C.						TOTAL BOTTLES	NOTES
OW-6	3-16-90	0900	1						1	
OW-20	3-16-90	1240	1						1	
OW-19A	3-16-90	1430	1						1	
FB-GW	3-16-90	1550	1						1	
OW-19	3-16-90	1640	1						1	
									5	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Joanne Yeary	Roux	3-16-90	1830				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

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Department/Floor No.
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 11743

2 To (Recipient's Name) Please Print: Mr. John Sherwell
Recipient's Phone Number (Very Important): (512) 454-4797
Company: Radian Corporation
Department/Floor No.
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes ●): 8501 Mo-Pac Blvd.
City: Austin, Texas State: ZIP Required: 78720-1088

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): 6609Y

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address: 2100 [illegible] Dr
City: Austin State: TX ZIP Required: 78758

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash [redacted]

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [X] HOLD FOR PICK-UP (Fill in Box H)
2 [ ] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge) (CSS not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge (Release Signature Not Applicable)
6 [ ] DRY ICE _____ Lbs.
7 [ ] OTHER SPECIAL SERVICE _____
8 [ ] [illegible]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT in Pounds Only	YOUR DECLARED VALUE	OVERSIZE
1			
Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] _____ lbs.

Received At: 1 [ ] Regular Stop 2 [ ] On Call Stop 3 [ ] Drop Box 4 [ ] BSC 5 [ ] Station
FedEx Emp. No.

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

5 Release Signature: _____
Date/Time

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/88
PART # 119501 WCSEL
FORMAT #014
014
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11/89

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Young, Jeanne Young, J. Day

Sample Designation/Location	Date Collected	Time Collected	Total and valence states of As, Hg, Pb; Organo forms of Hg in 500 ml amber glass bottle. Chilled.						TOTAL BOTTLES	NOTES
OW-13	3-19-90	1420	1						1	
OW-15	3-19-90	1030	1						1	
OW-4	3-19-90	0930	1						1	
OW-9	3-19-90	1230	1						1	
OW-99	3-19-90	1300	1						1	
OW-1A	3-19-90	1700	1						1	
										Six ~~Four~~ Bottles TOTAL
									3/19	
									6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Jeanne Young	ROUX	3-19-90	1900				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Federal Express

Airbill #: 5776057630

Comments: Chilled

SENDER'S COPY

FEDERAL EXPRESS

USE THIS AIRBILL FOR DOMESTIC SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON-U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE TRACKING NUMBER 5776057630

9363N 5776057630

SENDER'S COPY

Sender's Federal Express Account Number: 1068-0540-7
Date: 3-19-90

1 From (Your Name) Please Print: Ms. Martha Smith
Your Phone Number (Very Important): 516-673-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 1 1 7 4 3

2 To (Recipient's Name) Please Print: Mr. John Shecwell Janet Lindsay
Recipient's Phone Number (Very Important): (512) 454-4797
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 8501 No-Pac Blvd.
City: Austin, Texas State: ZIP Required: 787[illegible]-1088

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): 6009X

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash
Expiration Date

IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [ ] HOLD FOR PICK-UP (Fill in Box 1)
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ] (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge) (CSS not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE _____ Lbs.
7 [ ] OTHER SPECIAL SERVICE _____
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT (In Pounds only)	VALUE DECLARED VALUE (Dollars only)	OVER SIZE
1			
Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] _____ lbs.

Received At
1 [ ] Regular Stop 3 [ ] Drop Box
4 [ ] B.B.C.
2 [ ] On-Call Stop 5 [ ] Station

FedEx Emp. No.

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Maximum amount limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss.

In the event of untimely delivery, Federal Express will at your request and with some limitations, refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

5 Release Signature: _____
Date/Time

* Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/88
PART # 119501 WCSEL
FORMAT #014

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ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Page of

Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s): Joanne Yeary, Martha Smith

Sample Designation/Location	Date Collected	Time Collected	Total and valence states of As, Pb, Hg; organo-metals of Sn, Hg, Fe; 1L 500 ml amber glass bottle, chilled to 4°C						TOTAL BOTTLES	NOTES
OW-1	3-20-90	1000	1						1	
OW-11	3-20-90	1345	1						1	
OW-10	3-20-90	1130	1						1	
OW-16	3-20-90	1500	1						1	
									4	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Joanne Yeary	Roux	3-20-90	1800				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Federal Express

Comments: Chilled

SENDER'S COPY

FEDERAL EXPRESS

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QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE TRACKING NUMBER 5776057652

9363N 5776057652

SENDER'S COPY

Sender's Federal Express Account Number: 1068-0540-7
Date: 3-20-90

1 From (Your Name) Please Print: Ms. Martha Smith
Your Phone Number (Very Important): 516-673-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 235
City: HUNTINGTON State: NY ZIP Required: 11743

2 To (Recipient's Name) Please Print: Mr. John Sherrell Janet Linkey
Recipient's Phone Number (Very Important): (512 454-4797
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes ®): 8501 No-Tex Blvd.
City: Austin, Texas State: ZIP Required: 78759-1088

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)
06609X

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash
Expiration Date

4 IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address:
City: State: ZIP Required:

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
10 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER †
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [ ] HOLD FOR PICK-UP (Fill in Box 4)
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ]
4 [ ] DANGEROUS GOODS (Extra charge) (CSS not available for Dangerous Goods Shipments)
5 [ ] CONSTRUCT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE ____
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (Extra charge)

PACKAGES	WEIGHT (Pounds Only)	VALUE (Dollars Only)	OVERSIZE
Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] ____ lbs.

Received At:
1 [ ] Regular Stop 3 [ ] Drop Box
2 [ ] On-Call Stop 4 [ ] B.S.C. 5 [ ] Station

FedEx Emp. No.

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Maximum amount limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified in the bill. Recovery cannot exceed actual documented loss.

In the event of untimely delivery, Federal Express will at your request and with some limitations, refund all transportation charges paid. See Service Guide for further information.

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5 Release Signature:
Date/Time:

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

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PART # 119501 WCSEL
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CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Yeary, M. Smith

Sample Designation/Location	Date Collected	Time Collected	Total and volume of bottles of As, Pb, Hg, Cd in organic free 500 ml amber glass bottle chilled to 4°C						TOTAL BOTTLES	NOTES
OW-21	3-21-90	1000	1						1	
OW-100	3-21-90	1030	1						1	
FB-GW2	3-21-90	1100	1						1	
OW-22	3-21-90	1200	1						1	
OW-28	3-21-90	1400	1						1	
										Five bottles total in cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	3-21-90	1930				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Federal Express
Airbill #: 5776057674
Comments:

SENDER'S COPY

FEDERAL EXPRESS

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USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON-U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE TRACKING NUMBER 5776057674

9363N 5776057674

SENDER'S COPY

Sender's Federal Express Account Number: 1068-0540-7
Date: 3-21-90

1 From (Your Name) Please Print: Ms. Martha Smith
Your Phone Number (Very Important): 516-673-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 1 1 7 4 3

2 To (Recipient's Name) Please Print: Mr. John Sherwell
Recipient's Phone Number (Very Important): 512 454-4797
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 8501 No-Pac Blvd.
City: Austin, Texas State: ZIP Required: 78730-1088

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): 66091

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash
Expiration Date

4 IF HOLD FOR PICK-UP, Print FedEx Address Here
Street Address:
City: State: ZIP Required:

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [ ] HOLD FOR PICK-UP
2 [ ] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge)
4 [ ] DANGEROUS GOODS (Extra charge) (Call not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT in Pounds Only	VALUE DECLARED VALUE (Dec. only)	OVER SIZE
Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] ____ lbs.

Received At: 1 [ ] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C. 5 [ ] Station
FedEx Emp. No. 610

5 Release Signature:
Date/Time 3-21-1020

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

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We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Maximum amount limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss.

In the event of untimely delivery, Federal Express will at your request and with some limitations, refund all transportation charges paid. See Service Guide for further information.

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Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/88
PART # 119501 WCSEL
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CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT- GSIP

Project Number: 06607Y

Project Location: Woburn, MA

Sampler(s): E. Jorgensen, J. Yearry

Sample Designation/Location	Date Collected	Time Collected	Organic Tin and Organic Mercury in 500 ml amber glass bottles (Chilled)	Fe, Zn in 40 ml glass vial, HCl, (Chilled)	Total and Volatile Trihalomethanes, As, Hg, Pb, Organic Tin and Organic Mercury in 500 ml amber glass bottles, HCl, (Chilled)				TOTAL BOTTLES	NOTES
OW-7	4/25/90	1500		2	2				4	
OW-101	4/25/90	1510		2	2				4	
GW-FB3	4/25/90	1450		~~2~~ 2 E1 RE	~~1~~ 1 E1 RE				3	16 bottles for ground-water samples
OW-11	4/25/90	1900	1						1	
OW-12	4/25/90	1000	1						1	20 bottles total in cooler (sent with sewer samples
OW-18	4/25/90	1250	1						1	
OW-19	4/25/90	1800	1						1	
OW-20	4/25/90	1830	1						1	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Joanne Yearry	Roux	4-25-90	2000				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Airbill # 5776057615 Federal Express-

Comments: Ground-water samples

SENDER'S COPY

FEDERAL EXPRESS

USE THIS AIRBILL FOR DOMESTIC SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON-U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE TRACKING NUMBER 5776057615

9363N 5776057615

SENDER'S COPY

Sender's Federal Express Account Number: 1068-0540-7
Date: 4-25-90

1 From (Your Name) Please Print: Ms. Martha Smith
Your Phone Number (Very Important): 516-673-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 11743

2 To (Recipient's Name) Please Print: Mr. John Sherwell
Recipient's Phone Number (Very Important): 512 454-4797
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes ●): 8501 No-Pac Blvd.
City: Austin, Texas State: ZIP Required: 78757 78720-1088

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): O 6609I

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address:
City: State: ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash
Expiration Date

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

† Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [ ] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ]
4 [ ] DANGEROUS GOODS (Extra charge) (Cargo not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE _____ Lbs.
7 [ ] OTHER SPECIAL SERVICE _____
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If allowed) (Extra charge)

PACKAGES	WEIGHT In Pounds (lbs.)	YOUR DECLARED VALUE (See right)	OVER SIZE
1	31	1	
Total 1	Total 31	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] _____ lbs.

Received At: 1 [ ] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [X] BSC 5 [ ] Station

FedEx Emp. No. 12 Date/Time 10/10/15

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Maximum amount limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss.

In the event of untimely delivery, Federal Express will at your request and with some limitations, refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

5 Release Signature:

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/88
PART # 119501 WCSEL
FORMAT #014
014
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APPENDIX B

Field Documentation and Chain of Custody Forms

Section 6. Surface-Water High Flow Sampling Logs and Chain of Custody Forms

Part 1. Surface-Water High Flow Sampling Logs

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-3

DATE 4/19/90
TIME 1330
INITIALS JY, EJ

STREAM WIDTH 4.5 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 0.06 FT^2

STREAM DISCHARGE 0.001 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX #167

SUSPENDED SEDIMENT SAMPLE COLLECTED? YES
NOTES: DESIGNATED SW-3 ; 1330

STREAM SEDIMENT SAMPLE COLLECTED? YES
NOTES: DESIGNATED SED - SW-3 ; 1330

ADDITIONAL INFORMATION: SUNNY, 65°F, CLEAR

VERY LITTLE FLOW ; MUCKY ; ORANGE SILTY BOTTOM WITH A LOT OF ORGANIC MATERIAL.
NO FLOW EVIDENT ACROSS MOST OF THE WETTED AREA EXCEPT FOR NARROW CHANNEL.

VELOCITY = 0.01 ft/sec

DEPTH = 0.08 ft in channel

WIDTH = 4.5 ft swampy
0.75 ft channel

STAFF GAUGE = 0.48'

WATER TEMP = 19°C

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-2

DATE 4/19/90
TIME 1430
INITIALS JY, EJ

STREAM WIDTH 3.80 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 1.31 FT^2

STREAM DISCHARGE 0.17 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX #16

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR ~ 65°F
WATER TEMPERATURE = 16°C

	SOUTH		NORTH
DISTANCE FROM SOUTH BANK (ft)	0.95'	1.90'	2.85'
DEPTH (ft)	0.35	0.37'	0.31'
FLOW VELOCITY (ft/sec)	0.04	0.28 0.23	0.07

FLOW MEASUREMENT IN MIDDLE OF STREAM TAKEN AT 0.2h AND 0.8h.
FLOW MEASUREMENTS AT SIDES TAKEN AT 0.5h.

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-5

DATE 4/19/90
TIME 1200
INITIALS JY, EJ

STREAM WIDTH 7.50 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 5.72 FT^2

STREAM DISCHARGE 5.53 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX #167

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR ~55°F, WATER TEMP 10°C
TAKE 10 MEASUREMENTS ACROSS STREAM AT 0.68' INTERVALS
MEASUREMENTS TAKEN AT MIDPOINT IN WATER COLUMN.

WEST — EAST

DISTANCE FROM WEST BANK (ft)	0.68'	1.36'	2.04'	2.72'	3.40'	4.08'	4.76'	5.44'	6.12'	6.8'
DEPTH (ft)	0.30'	0.75'	0.95'	1.00'	1.18'	1.03'	0.87'	0.74'	0.63'	0.54'
flow velocity (ft/sec)	0.00	0.01	0.50	1.79	2.11	2.08	1.38	0.01	0.01	0.00

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-4

DATE 4/19/90
TIME 1310
INITIALS JY, EJ

STREAM WIDTH 4.90 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 3.07 FT^2

STREAM DISCHARGE 0.62 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX # 167

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR ~ 60°F
WATER TEMP - 10°C
GREEN ALGAE ALONG EDGE OF STREAM. SOME FOAM ON WATER DOWNGRADIENT OF SAMPLING LOCATION.

	NORTH		SOUTH
DISTANCE FROM NORTH BANK (ft)	1.23'	2.45'	3.68'
DEPTH (ft)	0.60'	0.79'	0.49'
FLOW VELOCITY (ft/sec)	0.31	0.57 0.06	.05

FLOW MEASUREMENTS IN MIDDLE OF STREAM TAKEN AT 0.2h and 0.8h
MEASUREMENTS AT SIDE TAKEN AT 0.5h.

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-7

DATE 4/19/90
TIME 1700
INITIALS JY, EJ

STREAM WIDTH 4.30 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 2.93 FT^2

STREAM DISCHARGE 0.72 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX #167

SUSPENDED SEDIMENT SAMPLE COLLECTED? YES
NOTES: DESIGNATED 1700 SW-7

STREAM SEDIMENT SAMPLE COLLECTED? YES
NOTES: DESIGNATED SED-SW-7 ; 1700
CLAYEY MATERIAL

ADDITIONAL INFORMATION: SUNNY, CLEAR, ~ 60°F

STREAM GAUGE = 0.76'
WATER TEMP = 14°C

TAKE 4 FLOW MEASUREMENTS

WEST	1/4	1/2	3/4	EAST
DEPTH (ft)	0.51'	0.80'	0.74'	
flow velocity (ft/sec)	0.08	0.55 0.35	0.14	

CENTER OF STREAM MEASUREMENT AT 0.2h and 0.8h
1/4 AND 3/4 MEASUREMENTS AT 0.5h

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-6

DATE 4/19/90
TIME 1645
INITIALS JY, EJ

STREAM WIDTH 10.3 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 4.46 FT^2

STREAM DISCHARGE 0.15 CFS
INSTRUMENT ID MONTEDORO - WHITNEY CURRENT VELOCITY METER ROUX # 167

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR ~60°F
WATER TEMP = 12°C
THICK SOFT SEDIMENT ON STREAM BOTTOM. OILY RUNOFF VISIBLE FROM ADJACENT DUMPSTER STORAGE AREA. SEDIMENT GREENISH-BLACK WHEN DISTURBED. SHEEN ON WATER.

NORTH — SOUTH

DISTANCE FROM NORTH BANK (ft)	1.0'	2.0'	3.0'	4.0'	5.0'	6.0'	7.0'	8.0'	9.0'	10.0'
DEPTH (ft)	0.4'	0.4'	0.4'	0.5'	0.5'	0.5'	0.4'	0.4'	0.4'	0.4'
FLOW VELOCITY (ft/sec)	0.0	0.01	0.01	0.05	0.14	0.17	0.01	0.0	0.0	0.0

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-9

DATE 4/19/90
TIME 1115
INITIALS JD

STREAM WIDTH 190 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 1556.1 FT^2

STREAM DISCHARGE 24.38* CFS
INSTRUMENT ID SWOFFER MODEL 2100 CURRENT VELOCITY METER

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, ~60°F, BREEZE TO 10 mph

WEST — EAST

DISTANCE FROM WEST BANK (ft)	9.5'	28.5'	47.5'	66.5'	85.5'	104.5'	123.5'	142.5'	161.5'	180.5'
DEPTH (ft)	1.0'	1.7'	6.5'	9.5'	11.0'	12.0'	13.5'	13.0'	9.7'	4.0'
FLOW VELOCITY (ft/sec)	0.02*	0.0	0.0	0.035*	0.01*	0.045*	0.01*	0.0	0.015*	0.0

* MEASUREMENTS POSSIBLY AFFECTED BY BOAT MOVEMENT

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-8

DATE 4/19/90
TIME 1235
INITIALS JY, EJ

STREAM WIDTH 3.30 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 0.80 FT^2

STREAM DISCHARGE 0.09 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX #167

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR, ~60° F

	WEST		EAST
DISTANCE FROM EAST BANK (ft)	2.48	1.65	0.825
DEPTH (ft)	0.13	0.30	0.12
FLOW VELOCITY	0.0	0.27	0.0

FLOW MEASUREMENT TAKEN AT MID POINT IN WATER COLUMN.

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-11

DATE 4/19/90
TIME 1300
INITIALS TD

STREAM WIDTH 194 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 1912.84 FT^2

STREAM DISCHARGE 18.88 * CFS
INSTRUMENT ID SWOFFER MODEL 2100 CURRENT VELOCITY METER

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, ~60°F BREEZE TO 10 mph.

WEST — EAST

DISTANCE FROM WEST BANK (ft)	9.7'	29.1'	48.5'	67.9'	87.3'	106.7'	126.1'	145.5'	164.9'	184.3'
DEPTH (ft)	1.0'	4.4'	11.5'	14.0'	14.4'	12.7'	11.0'	11.4'	11.5'	6.7'
FLOW VELOCITY (ft/sec)	0.0	0.01	0.0	0.03*	0.0	0.015*	0.005	0.005*	0.015*	0.005

* MEASUREMENTS POSSIBLY AFFECTED BY BOAT MOVEMENT

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-10

DATE 4/19/90
TIME 1535
INITIALS JY, EJ

STREAM WIDTH 6.00 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 4.49 FT^2

STREAM DISCHARGE 8.08 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX# 167

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR ~60°F
WATER TEMP = 12°C IN STREAM
WATER TEMP = 22°C IN PIPE EMPTYING INTO STREAM
MEASUREMENTS TAKEN JUST WEST OF RR BRIDGE AFTER CULVERT EMPTIES INTO STREAM.

	NORTH									SOUTH
DISTANCE FROM NORTH STREAM BANK (ft)	0.55'	1.09'	1.63'	2.18'	2.73'	3.27'	3.82'	4.36'	4.91'	5.45'
Depth (ft)	0.30'	0.32'	0.52'	0.78'	0.82'	0.68'	0.64'	1.05'	1.19'	1.21'
FLOW VELOCITY (ft/sec)	1.71	1.67	2.57	2.22	2.28	0.23	0.70	1.99	2.22	1.83

CONCRETE PIPE (CULVERT) ENTERS STREAM FROM SOUTH — WATER IS STEAMING. AIR IN PIPE IS HOT; ~7-10 gpm FLOWING FROM PIPE. NO ODOR FROM PIPE. PIPE APPEARS TO BE COMING FROM 3C COMPANY (ADHESIVES & SEALANTS).

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-13

DATE 4/19/90
TIME 1530
INITIALS TD

STREAM WIDTH 15 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 21.45 FT^2

STREAM DISCHARGE 5.49 CFS
INSTRUMENT ID SWOFFER MODEL 2100 CURRENT VELOCITY METER

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, ~60°F BREEZE TO 10 mph.

WEST EAST

DISTANCE FROM WEST BANK (Ft)	0.75'	2.25'	3.75'	5.25'	6.75'	8.25'	9.75'	11.25'	12.75'	14.25
DEPTH (Ft)	1.4'	1.5'	1.9'	1.8'	1.7'	1.4'	1.4'	1.2'	1.1'	0.9'
FLOW VELOCITY (ft/sec)	0.0	0.29	0.39	0.31	0.39	0.32	0.39	0.22	0.0	0.01

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-12

DATE 4/19/90
TIME 1140
INITIALS JY, EJ

STREAM WIDTH 10.80 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 15.75 FT^2

STREAM DISCHARGE 0.41 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX #167

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR, 55°F
WATER TEMP = 9°C

TAKE 10 MEASUREMENTS ACROSS STREAM AT 0.98 ft INTERVAL AT MIDPOINT IN WATER COLUMN

	NORTH									SOUTH
DISTANCE FROM NORTH BANK (ft)	0.98'	1.96'	2.94'	3.92'	4.90'	5.88'	6.86'	7.84'	8.82'	9.80'
DEPTH (ft)	0.88'	1.60'	1.82'	1.73	1.85'	1.95'	1.86'	1.81'	1.16'	0.60'
FLOW VELOCITY (ft/sec)	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.02	0.18	0.02

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-15

DATE 4/19/90
TIME 1610
INITIALS JY, EJ

STREAM WIDTH 7.00 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 3.4 FT^2

STREAM DISCHARGE 0.99 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX# 167

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR DAY ~55°F
WATER TEMP = 13°C . LOCATED IN BACK OF "WINN."

JEST / DISTANCE FROM WEST BANK (ft)	0.64'	1.27'	1.90'	2.55'	3.18'	3.82'	4.45'	5.09'	5.73'	6.36' EJAY
DEPTH (ft)	0.15'	0.25'	0.32'	0.54'	0.81'	0.86'	0.93'	0.64'	0.46'	0.24'
FLOW VELOCITY (ft/sec)	0.0	0.01	0.03	0.27	0.49	0.59	0.37	0.24	0.0	0.01

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-14

DATE 4/19/90
TIME 1030
INITIALS JY, EJ

STREAM WIDTH 14.2 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 12.54 FT^2

STREAM DISCHARGE 9.86 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX # 167

SUSPENDED SEDIMENT SAMPLE COLLECTED? YES
NOTES: DESIGNATED SW-14 / 1030

STREAM SEDIMENT SAMPLE COLLECTED? YES
NOTES: DESIGNATED SED. SW-14 / 1030
ATTEMPT TO COLLECT WITH PETERSON DREDGE - NOT ENOUGH SEDIMENT, COMPLETE SAMPLING WITH SHOVEL.

ADDITIONAL INFORMATION: SUNNY, CLEAR, ~45°F

TAKE 10 MEASUREMENTS ACROSS STREAM, UNDER BRIDGE
TAKE MEASUREMENTS AT INTERVALS OF 1.29 ft FROM BANK AND AT CENTER OF WATER COLUMN.

	WEST									EAST
STREAM DEPTH (ft)	0.89	0.90	0.89	0.90	0.90	0.90	0.89	0.90	0.76	0.89
DISTANCE FROM WEST BANK (ft)	1.29	2.58	3.87	5.16	6.45	7.74	9.03	10.32	11.61	12.90
FLOW VELOCITY (ft/sec)	1.58	1.63	1.70	1.59	0.98	0.17	0.05	0.03	0.01	0.00

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-1

DATE 4/19/90
TIME 1700
INITIALS TD

STREAM WIDTH 2ea x 2 FT
STREAM DEPTH 2 FT
CROSS SECTIONAL AREA 6.3 FT^2

STREAM DISCHARGE 0.63 CFS
INSTRUMENT ID SWOFFER MODEL 2100 CURRENT VELOCITY METER.

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: TWO SUBMERGED 2 ft DIAMETER CULVERTS WHICH CONNECT HOLDING PONDS.

FLOW VELOCITY: 0.08 ft/sec 0.12 ft/sec

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-16

DATE 4/19/90
TIME 1730
INITIALS TD

STREAM WIDTH 10 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 5.0 FT^2

STREAM DISCHARGE 0 CFS
INSTRUMENT ID SWOFFER MODEL 2100 CURRENT VELOCITY METER

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, 60° F, LT BREEZE

WEST — EAST

DISTANCE FROM WEST BANK (ft)	0.5'	1.5'	2.5'	3.5'	4.5'	5.5'	6.5'	7.5'	8.5'	9.5'
Depth (ft)	0.5'	0.5'	0.5'	0.5'	0.5'	0.5'	0.5'	0.5'	0.6'	0.4'
FLOW VELOCITY (ft/sec)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SURFACE WATER
HIGH-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SW-17

DATE 4/19/90
TIME 1410
INITIALS JY, EJ

STREAM WIDTH 11.0 FT
STREAM DEPTH SEE BELOW FT
CROSS SECTIONAL AREA 7.62 FT^2

STREAM DISCHARGE 0.21 CFS
INSTRUMENT ID MONTEDORO-WHITNEY CURRENT VELOCITY METER ROUX #167

SUSPENDED SEDIMENT SAMPLE COLLECTED? NO
NOTES:

STREAM SEDIMENT SAMPLE COLLECTED? NO
NOTES:

ADDITIONAL INFORMATION: SUNNY, CLEAR ~65°F
WATER TEMP = 12°C
TAKE 10 MEASUREMENTS ACROSS STREAM AT 1.00' INTERVALS. TAKE FLOW MEASUREMENTS AT MIDPOINT OF WATER COLUMN.

WEST										EAST
DISTANCE FROM WEST BANK (ft)	1.00'	2.00'	3.00'	4.00'	5.00'	6.00'	7.00'	8.00'	9.00'	10.00'
DEPTH (ft)	0.77'	1.03'	1.51'	0.80'	0.69'	0.70'	0.58'	0.51'	0.31'	0.22'
FLOW VELOCITY (ft/sec)	0.00	0.01	0.06	0.13	0.01	0.00	0.00	0.00	0.00	0.00

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 6. Surface-Water High Flow Sampling Logs and Chain of Custody Forms

Part 2. Surface-Water High Flow Sampling Chain of Custody Forms

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Joanne Yancey, Eric Jorgensen

Sample Designation/Location	Date Collected	Time Collected	Total suspended sediments in 1 pint poly bottles	Grain size analysis in 1 liter glass jar					TOTAL BOTTLES	NOTES
SED-SW-14	4-19-90	1030		1						Matrix soil
SW-14	4-19-90	1030	1							Matrix-water
SED-SW-3	4-19-90	1330		1						Matrix-soil
SW-3	4-19-90	1330	1							Matrix-water
SED-SW-7	4-19-90	1700		1						Matrix-soil
SW-7	4-19-90	1700	1							Matrix-water

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric M Jorgensen	ROUX ASSOCIATES	4/19/90	1845	Joanne Atton	Enseco	4/19/90	1845
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method:

Comments:

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 7. Surface-Water Low Flow Sampling Logs and Chain of Custody Forms

Part 1. Surface-Water Low Flow Sampling Logs

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-1

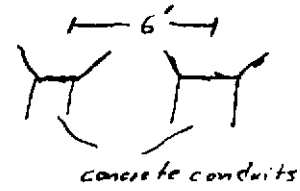
Date: 8/3/90 Weather: Clear 85°

Time: 9:50 Collector's Initials: B.T. + B.R.

~~Stream~~ Width: 6 ft

Stream Depth: 0.6 – 2.2 ft

Cross Sectional Area: 10.55 ft²



Stream Discharge: < 0.10 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
24°C	7.63	220 umho/cm	178.1 mV	7.3 mg/l	Brown	moderately cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-1 (SED-1)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab Sample (Shovel)

Sediment Description:

Black coarse SAND and coarse gravel
some fine sand

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-2

Date: 8/3/10 Weather: Sunny ~75°F

Time: 8:30 Collector's Initials: H.E

Stream Width: 4 ft

Stream Depth: 0.05 ft

Cross Sectional Area: 0.23 ft^2

Stream Discharge: < 0.0023 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
28°C	NA	310 u/S	13.9 mV	3.2 mg/l	brown	cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-2 (SED-2)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: GRAB SAMPLE (SHOVEL)

Sediment Description:

NOT AVAILABLE

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-3

Date: 8/3/90 Weather: Clear 92°

Time: 14:25 Collector's Initials: B.T.

Stream Width: — ft

Stream Depth: Dry ft

Cross Sectional Area: — ft^2

Stream Discharge: — CFS

Instrument Id: —

Water Samples Collected For:	Yes	No	Comments
TAL Metals, Tin, Cr^{+3}, hardness		✓	Stream Dry
TCL VOCs		✓	
TCL Semi-VOCs		✓	
TCL Pesticides/PCBs		✓	
Orthophosphate, Total Phosphorus, COD		✓	
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS		✓	
Sulfide		✓	
TOC		✓	
Fe^{+2}		✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg		✓	

Sample Collection Method: No Sample Collected - Stream Dry

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
N/A							

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-3 (SED-3)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab Sample (shovel

Sediment Description: Brown med(+) to coarse SAND little fine sand, roots, grass. Iron floculant stained on sand and grass.

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-4

Date: 8/2/90 Weather: Clear 85°

Time: 1730 Collector's Initials: B.T H.E

Stream Width: 1.4 ft

Stream Depth: .03 ft

Cross Sectional Area: 0.028 ft^2

Stream Discharge: 0.012 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
27°C	6.35	540 u/s	130 mV	7.3 mg/l	brown	slightly cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-4 (SED-4)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: grab sample (shovel)

Sediment Description:
Brown coarse SAND ~~and~~ some coarse to fine gravel, little fine sand.

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-5

Date: 8/2/90 Weather: Sunny 85°F

Time: 13:15 Collector's Initials: HE, BT

Stream Width: 5 ft

Stream Depth: 0.35-0.4max ft

Cross Sectional Area: 1.45 ft^2

Stream Discharge: 0.72 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓	
TCL VOCs	✓	
TCL Semi-VOCs	✓	
TCL Pesticides/PCBs	✓	
Orthophosphate, Total Phosphorus, COD	✓	
SO_4, Cl, CO_3, HCO_3, Cr^{+6}, TSS	✓	
Sulfide	✓	
TOC	✓	
Fe^{+2}	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	

Sample Collection Method: GRAB Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
24°C	6.55	400 µmho/cm	119.9 mV	4.9 mg/l	Not AVAILABLE	slightly cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-5 (SED-5)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab Sample Shovel

Sediment Description:
Brown medium to coarse SAND, some coarse gravel, little silt.

Additional Information: width 5.0

Wt	.5	1.5	2.5	3.5	4.5	+ E
Dep	.23	.40	.35	.32	.15	
V	.50	.60	.65	.33	.20	

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-6

Date: 8/2/90 Weather: Clear 75°

Time: 7:50 Collector's Initials: B.T + E.H.

Stream Width: 8 ft

Stream Depth: 0.1-0.7 ft

Cross Sectional Area: 2.3 ft^2

Stream Discharge: 0.498 = 0.50 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg			

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
10°C	7.57	1040 µmho/cm	-14mV	5 mg/l	brown	clear	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-6 (SED-6)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab Sample (Shovel)

Sediment Description: Brown SILT, decayed organic material

Additional Information:

	South		1.5		2.5		3.5		4.5		5.5			North
	0	.75	1	1	2	1	3	1	4	1	5	1	6	1	7	1	8
Depth (ft)		0.1	0.08		0.82		0.42		.74		0.39		0.22		0.16
Velocity	<0.01		<0.1		0.13		0.33		0.32		0.25		<0.01		0.01

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-17

Date: 9/1/90 Weather: Sunny 85°

Time: 18:00 Collector's Initials: B.T H.R

Stream Width: 4.1 ft

Stream Depth: 0.49 ft

Cross Sectional Area: 1.66 ft^2

Stream Discharge: 0.29 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		Matrix spike and
TCL VOCs	✓		spike replicate
TCL Semi-VOCs	✓		collected at
TCL Pesticides/PCBs	✓		this location.
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_3, HCO_3, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
23°C	7.62	1180 µmho/cm	111.7 mV	6.2 mg/l	brown	slightly cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-~~#~~7 (SED-7)

18:00

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		Matrix Spike and
Cr^{+6}, TOC, Total Carbonate, pH	✓		Spike Duplicate
TCL VOCs	✓		Collected at this
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		location
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: grab Sample (Shovel

Sediment Description:

Top 0-1' Brown Coarse to med SAND, Some coarse gravel to cobbles
0.1-0.3 Black SILT and/or red silt and clay
0.3-0.4 Red-Purple SILT and Clay.

Additional Information:

West 0.5 1.5 2.5 3.5 East
0 1 2 3 4

Depth (6/10) .58 B.T. 0.47 B.T. 0.58 BT .53

Velocity <0.01 B.T. .19 BT 0.33 B.T. <0.01

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-8 (SW-8 / SW-100)

Date: 8/3/90 Weather: not recorded

Time: 1145 Collector's Initials: H.E.

Stream Width: – (see below) ft

Stream Depth: – ft

Cross Sectional Area: – ft^2

Stream Discharge: – CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓	
TCL VOCs	✓	
TCL Semi-VOCs	✓	
TCL Pesticides/PCBs	✓	
Orthophosphate, Total Phosphorus, COD	✓	
SO_4, Cl, CO_3, HCO_3, Cr^{+6}, TSS	✓	
Sulfide	✓	
TOC	✓	
Fe^{+2}	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
25°C	7.90	280 umho/cm	169 mV	10.2 mg/L	BROWN	slightly cloudy	NONE

Additional Information:

No flow on stream - water sample collected from pond.

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-8 (SED-8 / SED-100)

Sediment Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}	✓	
Cr^{+6}, TOC, Total Carbonate, pH	✓	
TCL VOCs	X	
TCL Semi-VOCs, TCL Pesticides/PCBs	✓	
Grain Size Analysis	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	
Iron oxide, Manganese oxide	✓	

Sample Collection Method: Grab Sample

Sediment Description: not recorded

Additional Information:

Eh of sediment = 347.1

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-9

Date: 8/1/90 Weather: partly cloudy 70°

Time: 09:30 Collector's Initials: B.T. + H.E.

Stream Width: 180' ft

Stream Depth: 13 max ft

Cross Sectional Area: 1413 ft^2

Stream Discharge: 152 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓	
TCL VOCs	✓	
TCL Semi-VOCs	✓	
TCL Pesticides/PCBs	✓	
Orthophosphate, Total Phosphorus, COD	✓	
SO_4, Cl, CO_3, HCO_3, Cr^{+6}, TSS	✓	
Sulfide	✓	
TOC	✓	
Fe^{+2}	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	

Sample Collection Method: grab sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
21°C	9.75	540 µmho/cm	+155.3 mV	4.9 mg/l	brown	moderately cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-9 (SED-9)

Sediment Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}	✓	
Cr^{+6}, TOC, Total Carbonate, pH	✓	
TCL VOCs	✓	
TCL Semi-VOCs, TCL Pesticides/PCBs	✓	
Grain Size Analysis	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	
Iron oxide, Manganese oxide	✓	

Sample Collection Method: grab sample (Ponar)

Sediment Description:

Black Silt; organic odor

Additional Information:

	0	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	162	171	180
	7	8	12	13	14	11	8.5	6.8	6.2	0.8											
.4	0.07	0.15	0.18	0.14	0.09	.15	.17	.10	.04	0											
.2	0.07	0.09	.05	.06	.07	.15	.09														

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-10

Date: 8/1/90 Weather: Sunny, 80°, Windy

Time: 1300 Collector's Initials: BT, HE

Stream Width: 7' ft

Stream Depth: 0.4-0.5 ft

Cross Sectional Area: 2.93 ft^2

Stream Discharge: 2.11 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓	
TCL VOCs	✓	
TCL Semi-VOCs	✓	
TCL Pesticides/PCBs	✓	
Orthophosphate, Total Phosphorus, COD	✓	
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS	✓	
Sulfide	✓	
TOC	✓	
Fe^{+2}	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	

Sample Collection Method: GRAB Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
22°C	7.03	600.0 umho/cm	139.2 mV	6.2 mg/L	yellow	slightly cloudy	none

Additional Information:

Samples collected approx. 15' downstream of RAILROAD BRIDGE.

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-10 (SED-10)
1300 - time sampled

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: shovel into deconned bucket

Sediment Description: Coarse grain sand, pebbles, cobbles boulders. tan, semi angular loose.

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-11

Date: 7/31/90 Weather: Sunny 80°

Time: 1545 Collector's Initials: B.T

Stream Width: 200 ft

Stream Depth: 14 max ft

Cross Sectional Area: 1,796 ft^2

Stream Discharge: 106 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: grab sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
27°	9.92	470 uS/cm	198.1 mV	7.4 mg/l	Brown	Slightly cloudy	None

Additional Information:
recheck pH calibration
7.00 STD → 7.05
10.00 STD → 9.91

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-11 (SED-11)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab Sample Ponar

Sediment Description: Black-Brown Silt, trace fine sand; organic odor.

Additional Information:

W	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	East
Depth		0.5	3.0		12	2.4		14		13		12	2.4	10.5		11		10.5			3.0	
velocity	<.001		0.05		.08		.08		.19		.09			.09		.10		0.05			<0.01	
					.06		.02		.06		.01			.01		.01		.01				

6/10

8/10

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-12

Date: 8/2/90 Weather: sunny, 80°

Time: 11:00 Collector's Initials: HE, BT

Stream Width: 7 ft

Stream Depth: 0.4 ft

Cross Sectional Area: 3 ft^2

Stream Discharge: 0.604 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_3, HCO_3, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
19°C	5.61	400mV µmho/cm	129.4 mV	3.6 mg/l	Clear	Slightly cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-12 (SED-12)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab Sample (Shovel)

Sediment Description:
Brown coarse SAND, some medium Sand trace Silt

Additional Information:

North	0	0.5	1	1	2	1	3	1	4	1	5	1	6	1	South 7
Depth($\frac{6}{10}$)		.39		.48		.40		.43		.44		.52		.34	
velocity		.42		.50		.37		<0.01		.02		.22		.06	

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-13

Date: ~~Aug~~ July 31, 1990 Weather: sunny 80°

Time: 1330 Collector's Initials: HE

Stream Width: 11 ft

Stream Depth: ~~1.3~~ 1.3 ft

Cross Sectional Area: 12 ft ^{2}

Stream Discharge: 2.18 CFS

Instrument Id: Snoffler 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_2, HCO_3, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: grab sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
27°	~~9.05~~ 6.79	460 umho/cm	213.0 mV	7.3 mg/L	tan	v. sl. cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SED-13 (SED-13)

1500

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab Sample (Ponar)

Sediment Description:

Black and grey fine silt, little fine sand. organic odor.

Additional Information:

West												East
width	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5
Depth		.85		1.05		1.2		1.19		1.35		1.47
Velocity		0.19		0.18		0.23		0.24		0.26		0.19

6	6.5	7	7.5	8	8.5	9	9.5	10
	1.35		1.26		1.26		1.18	
	<0.01		0.24		0.19		0.07	

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-14

Date: 7-31-90 Weather: Sunny, 78°F

Time: 0930 Collector's Initials: B.T.

Stream Width: 14 ft

Stream Depth: 0.64 ft

Cross Sectional Area: 7.88 ft^2

Stream Discharge: 4.27 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓	
TCL VOCs	✓	
TCL Semi-VOCs	✓	
TCL Pesticides/PCBs	✓	
Orthophosphate, Total Phosphorus, COD	✓	
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS	✓	
Sulfide	✓	
TOC	✓	
Fe^{+2}	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
21°C	6.07	+450 uS/cm	+120.2 mVolts	6.5 mg/L	yellow-green	slightly cloudy	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-14 (SED-14)

Sediment Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}	✓	
Cr^{+6}, TOC, Total Carbonate, pH	✓	
TCL VOCs	✓	
TCL Semi-VOCs, TCL Pesticides/PCBs	✓	
Grain Size Analysis	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	
Iron oxide, Manganese oxide	✓	

Sample Collection Method: Grab Sample (Shovel)

Sediment Description:

SAND - Coarse, some medium sand trace silt.
sample collected 0.1 - 0.3' depth.

Additional Information:

										EAST
WEST	0.7	2.1	3.5	4.9	6.3	7.7	9.1	10.5	11.9	13.3
0	1.4	2.8	4.2	5.6	7.0	8.4	9.8	11.2	12.6	14
depth:	0.24	0.68	0.68	0.64	0.71	0.70	0.35	0.63	0.63	0.32
velocity:	0.83	1.10	1.12	0.94	0.71	0.22	0.06	0.01	<0.01	<0.01

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-15

Date: 8/1/90 Weather: Sunny + Hot 90°F

Time: 14:45 Collector's Initials: B.T + HE

Stream Width: 2.0' ft

Stream Depth: 0.87 max ft

Cross Sectional Area: 4.13 ft^2

Stream Discharge: 0.93 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes	No	Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_3, HCO_3, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: Grab Sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
23°C	~~6.75~~ 9.89	1180 µmho/cm	120.7 mV	6.1 mg/l	Brown	Clear	none

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-15 (SED-15) 15:50

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab sample with shovel

Sediment Description: Red brown med to coarse SAND little fine sand trace silt.
Sediment sample collected from 0.0 - 0.4' below grade

Additional Information:

West

	0	0.5'	1.5	2.5	3.5	4.5	5.5	6.5
Depth		~~0.01~~ .20'	.67'	.87	.62	0.45	.78	0.54
V		<0.01	0.04	0.59	0.50	<0.01 (.70')	.01	.13

7 East

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-16

Date: 8/2/90 Weather: _____

Time: 10:00 Collector's Initials: B.T. M.S.

Stream Width: — ft

Stream Depth: — ft

Cross Sectional Area: — ft^2

Stream Discharge: — CFS

Instrument Id: —

Water Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓	Stream Dry
TCL VOCs	✓	
TCL Semi-VOCs	✓	
TCL Pesticides/PCBs	✓	
Orthophosphate, Total Phosphorus, COD	✓	
SO_4, Cl, CO_2, HCO_3, Cr^{+6}, TSS	✓	
Sulfide	✓	
TOC	✓	
Fe^{+2}	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	

Sample Collection Method: NO WATER SAMPLE COLLECTED

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
—	N/A	—					

Additional Information:

approximately 1" standing water over sediments no water samples were collected

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-16 (SED-16)

Sediment Samples Collected For:	Yes/No	Comments
TAL Metals, Tin, Cr^{+3}	✓	
Cr^{+6}, TOC, Total Carbonate, pH	✓	
TCL VOCs	✓	
TCL Semi-VOCs, TCL Pesticides/PCBs	✓	
Grain Size Analysis	✓	
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓	
Iron oxide, Manganese oxide	✓	

Sample Collection Method: grab sample (shovel)

Sediment Description: Black - brown decay organic material (fragmentes, leaves, vegetation).

Additional Information:

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-17

Date: 8/2/90 Weather: Sunny 85°

Time: 1850 Collector's Initials: B.T. + H.E

Stream Width: 4 ft

Stream Depth: 0 - 0.5 ft

Cross Sectional Area: 1.31 ft^2

Stream Discharge: <0.08 CFS

Instrument Id: Swoffer 2100

Water Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}, hardness	✓		
TCL VOCs	✓		
TCL Semi-VOCs	✓		
TCL Pesticides/PCBs	✓		
Orthophosphate, Total Phosphorus, COD	✓		
SO_4, Cl, CO_2, HCO_2, Cr^{+6}, TSS	✓		
Sulfide	✓		
TOC	✓		
Fe^{+2}	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		

Sample Collection Method: grab sample

Field Measurements:

TEMP	pH	COND	Eh	O_2	Color	Clarity	Odor
26°C	6.7	480 umho/cm	39.9 mV	—	brown	Slightly cloudy	yes

Additional Information:

Dissolved Oxygen meter was not functioning

SURFACE WATER
LOW-FLOW SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

Sampling Location: SW-17 (SED-17)

Sediment Samples Collected For:	Yes/No		Comments
TAL Metals, Tin, Cr^{+3}	✓		
Cr^{+6}, TOC, Total Carbonate, pH	✓		
TCL VOCs	✓		
TCL Semi-VOCs, TCL Pesticides/PCBs	✓		
Grain Size Analysis	✓		
Chemical forms of As, Hg, Pb, Organo Sn, Organic Hg	✓		
Iron oxide, Manganese oxide	✓		

Sample Collection Method: Grab Sample (Shovel)

Sediment Description:

Brown fine SAND and silt, some coarse gravel
Some organic material

Additional Information:

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 7. Surface-Water Low Flow Sampling Logs and Chain of Custody Forms

Part 2. Surface-Water Low Flow Sampling Chain of Custody Forms

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CHAIN OF CUSTODY

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SUITE 255
HUNTINGTON, NEW YORK 11743

Page 1 of 2

Project Name: TSCT GSIP

Project Number: 066091

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-11	7-31-90	1700	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	7-31-90	21:38	[illegible]	ERCO	[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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776 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: IDRT-GSIP

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s):

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-11	7-31-90	1700	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	7-31-90	7:38	[illegible]	ERCO	[illegible]	[illegible]

Delivery Method	Comments
hand delivered	

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ANALYSES

Project Name: TSRT-GSTP
Project Number: 01dw94
Project Location: Woburn MA
Sampler(s):

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]			TOTAL BOTTLES	NOTES
SW-11	7-31-90	1700	1	1	1	1			4	
										16 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	Roux	7-31-90	21:38				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: ~~Sulfide does~~ no MS.

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ANALYSES

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Martha Smith

Sample Designation/Location	Date Collected	Time Collected	TAL metals, tin, Cr+3 hardness in 1 liter poly bottle; preserved with HNO_3, chilled	TAL metals, tin, Cr+3 hardness in 1 liter poly bottle; filtered, chilled, preserved with HNO_3	TCL semi VOCs in 1 liter amber glass bottle; chilled	TCL semi-VOCs in 1 liter amber glass bottle; filtered, chilled	TCL pesticides, PCBs in 1 liter amber glass bottle; chilled	TCL pesticides, PCBs in 1 liter amber glass bottle; filtered, chilled	TOTAL BOTTLES	NOTES
SW-13	7-31-90	1330	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	7-31-90	21:38	Nancy Kelly	ERCO	8/1/90	

Delivery Method: hand delivered

Comments:

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Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Martha Smith

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi-VOCs, pesticides, PCBs in 1 liter amber glass bottle. Chilled.	TCL Semi-VOCs, pesticides, PCBs in 1 liter amber glass bottle. Chilled.	Orthophosphate, Total phosphorus, COD 500 ml. poly bottle, preserved with H_2SO_4	Orthophosphate, Total phosphorus, poly bottle, filtered, H_2SO_4	Sulfate, chloride, carbonate, bicarbonate, TSS in 1 liter poly bottle, Chilled	Sulfate, chloride, carbonate, bicarbonate, Cr+6 in 1 liter poly bottle, filtered, chilled	TOTAL BOTTLES	NOTES
SW-13	7-31-90	1330	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	7-31-90	21:38	[illegible]	FACO	7/1/90	7:40 pm
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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175 PARK AVENUE
SUITE 266
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSTP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Martha Smith

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 500 ml poly bottle preserved with NaOH + Zn ($C_2H_3O_2$)$_2$, Chilled	Sulfide in 500 ml poly bottle filtered, preserved with NaOH + Zn ($C_2H_3O_2$)$_2$, Chilled	TOC in 40 ml glass vial preserved with H_2SO_4, Chilled	TOC in 40 ml glass vial filtered, preserved with pH H_2SO_4, Chilled			TOTAL BOTTLES	NOTES
SW-13	7-31-90	1330	1	1	2	2			6	
										18 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	7-31-90	21:38	[illegible]	[illegible]	[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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ANALYSES

Project Name: ISRT- GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Martha Smith, M. Smith, Brian Thomas

Sample Designation/Location	Date Collected	Time Collected	TAL Metals, Hg, Cr+6 Analyses in 1 liter poly bottle preserved with HNO3, chilled	TAL Metals, Hg, Cr+6 Analyses in 1 liter poly bottle preserved with HNO3, chilled	TCL Pesticides in 1 liter glass bottle, chilled	TCL Pesticides in 1 liter glass bottle, chilled	TCL Pesticides in 1 liter glass bottle, chilled	TCL Pesticides in 1 liter glass bottle, chilled	TOTAL BOTTLES	NOTES
SW-14	7-31-90	0930	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	7-31-90	21:38				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method:

Comments:

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ANALYSES

Project Name: TSLT - GSTP

Project Number: 016609Y

Project Location: Wooster, MA

Sampler(s): Martha Smith M. Smith Brian Thomas

Sample Designation/Location	Date Collected	Time Collected	VOCs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-14	7-31-90	0930	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	7-31-90	21:38	[illegible]	ERCO	[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method

Comments

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ANALYSES

Project Name: JET GASP

Project Number: 0000491

Project Location: Wilson, MA

Sampler(s): Martha Smith M. Smith Brian Thomas

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-14	7-31-90	0930	1	1	2	2			6	Total bottles 16 18 Bio

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	7-31-90	21:38	[illegible]	TRCO	7-31-90	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method:

Comments: Sulfide bottles marked in lab as being preserved with NaOH only. Not sure if Zinc acetate was used. - Martha Smith

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Project Name: ISRT- GSIP
Project Number: 066094
Project Location: Woburn MA
Sampler(s): Brian Thomas Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL Metals and Tin, Cr+3 in 250 ml wide mouth glass jar, Chilled.	Cr+6, TOC, Total Cyanide, pH in 250 ml wide mouth glass jar.	TCL VOCs in 60 ml glass wide mouth jar with Teflon septum cap.	Grain size analysis in 1 liter glass jar.	TCL Semi-VOCs, TCL Pesticides/PCBs in 250 ml glass wide mouth jar. Chilled.		TOTAL BOTTLES	NOTES
SED 14	7-31-90	0930	1	1	1	1	1		5	
SED 13	7-31-90	1600	1	1	1	1	1		5	
										10 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	7-31-90	21:38	Nora McCarthy	ERCO	7/31/90	9:40 am
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL metals and Cr+3 in 250 ml glass bottle, Chilled.	Cr+6, TOC, Total Cyanide, pH in 250 ml glass jar Chilled	TCL VOCs in 60 ml glass vials with teflon septum, chilled	TCL Semi VOCs, TCL pesticides/PCBs in 250 ml glass jar	Grain size in 1 liter glass bottle.	TCL VOCs in 40 ml vials preserved with HCL. Chilled	TOTAL BOTTLES	NOTES
SED-11	7-31-90	1700	1	1	1	~~2~~ 1	1		5	
SW-14	7-31-90	930						3	3	
SW-13	7-31-90	~~1600~~ 1330						3	3	
SW-11	7-31-90	1700						3	3	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	7:31-90	21:38	[illegible]	ERCO	[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL VOCs in 40 ml vial; Preserved with HCL, Chilled	TCL Semi VOCs in 1 liter amber glass bottle	TCL Pesticides, PCBs in 1 liter amber glass bottle	Cyanide in 500 ml poly bottle	TAL metals in 1 liter poly bottle, preserved with HNO3, chilled	TOC in 40 ml vial, Preserved with H2SO4, Chilled	TOTAL BOTTLES	NOTES
TRIP BLANK 1	7-31-90		2	1	1	1	1	2	8	
										22 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	Roux	7-31-90	21:38	[illegible]	EKC		

Delivery Method: hand delivered
Comments:

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ANALYSES

Project Name: JSRT-GSTP
Project Number: [illegible]
Project Location: Lowell, MA
Sampler(s): Brian Thomas, Heike Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
~~SW-17~~ SW-7 mod. RE 8-2-90	8-1-90	18:00	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	23:00	Norm Reilly	ERCO	8-1-90	11:00 AM
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: ERCO notified that SW-7 bottles were mistakenly labeled SW-17 mod. 8-2-90

ROUX

CHAIN OF CUSTODY

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SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP

Project Number: [illegible]

Project Location: Woburn MA

Sampler(s): Brian Hannon, Hilo Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
~~SW-17~~ SW-7 R.E. 8-2-90 M.H.	8-1-90	18:00	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	2200	[illegible]	ERCO	8/1/90	11:00 pm
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: ERCO notified that SW-7 bottles were mistakenly labeled SW-17. MH 8-2-90

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ANALYSES

Project Name: ISDT-GSIP
Project Number: 0161.F.14
Project Location: Woburn, MA
Sampler(s): Brian Hounes, Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]			TOTAL BOTTLES	NOTES
~~SW-17~~ SW-7 RE 8-2-90 md	8-1-90	18:00	1	1	2	2			6	
										18 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Herb Ernst	Roux	8/1/90	23:00	Norm M. Reilly	ERCO	8/1/90	11:00pm
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered.

Comments: ERCO notified that SW-7 bottles were mistakenly labeled SW-17 md. 8-2-90

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HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: JSRT GSIP
Project Number: [illegible]
Project Location: Lawrence, MA
Sampler(s): Brian Thomas, Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
~~SW-17 MSD~~ SW-7MSD RE: 8-2-90 [illegible]	8-1-90	1800	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	23:00	[illegible]	ERCO	[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: ERCO notified that SW-7MSD bottles were incorrectly labeled: SW-17 MSD - 8-2-90 [illegible]

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ANALYSES

Project Name: TSPT. GSIP
Project Number: 01W0014
Project Location: Woburn, MA
Sampler(s): Brian Thomas Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
~~SW-17MSD~~ SW-7MSD RE. 8-2-90 Md.	8-1-90	1800	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	23:00	[illegible]	8/1/90	[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: ERCO notified that SW-7MSD bottles were incorrectly labeled SW-17 MSD -8-2-90 Md.

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ANALYSES

Project Name: ISRT-GSIP

Project Number: 01dw49

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Hab Ernst

Sample Designation/Location	Date Collected	Time Collected	8260	8260	FA	FA			TOTAL BOTTLES	NOTES
~~SW-17MSD~~ SW-7MSD RE 8-2-90 md.	8-1-90	1800	1	1	2	2			6	Total 18 bottles in Cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	23:00	[illegible]	ERCO	8/1/90	11:00AM
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: ERCO notified that SW-7 MSD bottles were incorrectly labeled SW-17MSD - 8-2-90 md.

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ANALYSES

Project Name: ISRT - GSIP
Project Number: 066094
Project Location: Woburn, MA
Sampler(s): Brian Thomas Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	TAL Metals, tin, Cr+3, hardness in 1 liter poly bottle; Preserved with HNO3, Chilled	TAL Metals, tin, Cr+3, hardness in 1 liter poly bottle, Filtered, preserved with HNO3 Chilled.	TCL Semi-VOCs in 1 liter amber glass bottle. Chilled	TCL Semi-VOCs in 1 liter amber glass bottle. Filtered; Chilled.	TCL Semi-VOCs in 1 liter amber glass bottle. Chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle. Filtered, Chilled.	TOTAL BOTTLES	NOTES
~~SW-17MS~~ SW-7MS RE-8-2-90 md	8-1-90	1800	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-1-90	2255	[illegible]	ERCO	[illegible]	[illegible]

Delivery Method: hand delivered

Comments: Matrix is water. ERCO notified that SW-7MS bottles were incorrectly labeled SW-17MS - 8-2-90 md.

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Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi VOCs + Pesticides/PCBs in 1 liter amber glass bottle, chilled	TCL Semi VOCs + Pesticides/PCBs in 1 liter amber glass bottle, filtered, chilled	Ortho phosphate, total phosphorus, COD in 500 ml poly bottle, preserved with H2SO4, chilled	Ortho phosphate, total phosphorus, COD in 500 ml poly bottle, filtered, chilled, preserved with H2SO4	Sulfate, chloride, carbonate, bicarbonate in 1 liter poly bottle, chilled	Sulfate, chloride, carbonate, bicarbonate, Cr6 in 1 liter poly bottle, filtered, chilled	TOTAL BOTTLES	NOTES
~~SW-17 MS~~ SW-7MS RE. 8-2-90 MJ.	8-1-90	1800	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-1-90	2255	Neil M. Raith	ERCO	8/90	[illegible]

Delivery Method: hand delivered

Comments: Matrix is water. ERCO notified that SW-7MS bottles were incorrectly labeled SW-17MS - 8-2-90 MJ.

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Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 500 ml poly bottle preserved with NaOH, chilled.	Sulfide in 500 ml poly bottle, filtered, preserved with NaOH, chilled	TOC in 40 ml glass vial preserved with H_2SO_4, chilled.	TOC in 40 ml glass vial, filtered, preserved with H_2SO_4, chilled.			TOTAL BOTTLES	NOTES
~~SW 17 MS~~ SW-7MS RE. 8-2-90 md.	8-1-90	1800	1	1	2	2			6	
										18 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-1-90	2255	Mr. McCarthy	ERCO	8/1/90	11:00 PM

Delivery Method	Comments
hand delivered	ERCO notified that SW-7MS bottles were incorrectly labeled SW-17MS - 8-2-90 md. Matrix is water

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ANALYSES

Project Name: ISRT-GSIP

Project Number: [illegible]

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Hob Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-9	8-1-90	0930	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-1-90	2250	Nora McCarthy	ERCO	8/1/90	[illegible]

Delivery Method	Comments
hand delivered	Matrix is water

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Project Name: ISRT-GSJP

Project Number: [illegible]

Project Location: Lowell, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-9	8-1-90	0930	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-1-90	3250	N O'Reilly	ERCO	8/1/90	11:00 PM

Delivery Method: hand delivered

Comments: Matrix is water

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ANALYSES

Project Name: JSCR GSJP
Project Number: 0404.94
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	250 ml Poly Zinc Acetate R32	250 ml Poly Zinc Acetate R33	40 ml Glass Vial HCl F2	40 ml Glass Vial HCl F40	TCL VOCs in 40 ml Glass Vial, Chilled, HCl,		TOTAL BOTTLES	NOTES
SW-9	8-1-90	0930	1	1	2	2	3		9	
Trip Blank # 3	8-1-90						2		2	38 bottles
SW-10	8-1-90	1245					3		3	total in cooler
SW-15	8-1-90	1450					3		3	
~~SW-17~~ SW-7 RE 8-2-90 MJ.	8-1-90	1800					3		3	
~~SW-17MS~~ SW-7MS RE 8-2-90 MJ.	8-1-90	1800					3		3	
~~SW-17MSD~~ SW-7MSD RE 8-2-90 MJ.	8-1-90	1800					3		3	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-1-90	2250	Nora M Reilly	ERCO	8/1/90	11:00 pm
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered.

Comments: Matrix is water. ERCO ~~[illegible]~~ test all SW-7 ~~[illegible]~~ were mistakenly taken SW-17 8-2-90 MJ.

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ANALYSES

Project Name: JSPT. GSJP
Project Number: 066099
Project Location: Wabash, IN
Sampler(s): Martha Smith, Diane Miller

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-10	8-1-90	1245	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Robert Scott	Roux Associates	8/1/90	23:00	Norill Reilly	ERCO	8/1/90	11:00 pm
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is Water

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ANALYSES

Project Name: ISRT-GSIP

Project Number: [illegible]

Project Location: Walpole, MA

Sampler(s): Martha Smith, Diane Miller

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-10	8-1-90	1245	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	8/1/90	23:00	Nancy M. Reilly	ERCO	8-1-90	11:00 AM

Delivery Method: hand delivered

Comments: Matrix is water

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Project Name: ISRT-GSIP
Project Number: [illegible]
Project Location: Woburn, MA
Sampler(s): Martha Smith, Diane Miller

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]			TOTAL BOTTLES	NOTES
SW-10	8-1-90	1245	1	1	2	2			6	
										18 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	23:00	Norm Bailey	ERCO	8/1/90	11:00
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

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Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn MA
Sampler(s): Brian Thomas Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL Metals and Tin (Cr6 in 250 ml wide mouth jar. Chilled)	Cr6, TOC, Total Cyanide, pH, in 250 ml wide mouth glass jar. Chilled	TCL VOCs in 60 ml glass vial with septum with wide mouth jar	TCL Semi VOCs, TCL Pesticides/PCBs in 250 ml wide mouth glass jar. Chilled	Grain Size analysis in 1 liter glass jar		TOTAL BOTTLES	NOTES
~~SED 17~~ SED-7 RE. 8-2-90 MJ	8-1-90	1810	1	1	1	1	1		5	
~~SED 17 MS~~ SED-7MS RE 8-2-90 MJ	8-1-90	1810	1	1	1	1			4	Total bottles
~~SED 17 MSD~~ SED-7MSD. RE. 8-2-90 MJ	8-1-90	1810	1	1	1	1			4	13

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-1-90	2255	[illegible]	ERCO	8-1-90	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered.

Comments: Matrix — Soil. ERCO notified that all SED-7 bottles were incorrectly labeled SED-17, 8-2-90 MJ.

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Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Woburn MA
Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL Metals on a Tin Cr3 in 250 ml wide mouth glass jar (Chilled)	Cr6 TOC Total Carbonate pH in 250 ml wide mouth glass jar. Chilled.	TCL VOCs in 60 ml glass jar with teflon septum jar. Chilled.	TCL Semi VOCs, TCL Pesticides PCBs in 250 ml glass wide mouth jar, Chilled	Grain size analysis in 1 liter glass jar.		TOTAL BOTTLES	NOTES
SED-9	8-1-90	0945	1	1	1	1	1		5	
SED-15	8-1-90	1450	1	1	1	1	1		5	
										10 bottles total in cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-1-90	2255	Norm Reilly	ERCO	8/1/90	11

Delivery Method: hand delivered.

Comments: Matrix is soil.

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ANALYSES

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s): Brian Thomas, Herb Ernst, Martha Smith, Diane Miller

Sample Designation/Location	Date Collected	Time Collected	TAL Metals and Tin, Cr+6 in 250 ml wide mouth glass jar, Chilled	Cr+6 TOC Total Cyanide, pH in 250 ml wide mouth glass jar. Chilled	TCL VOCs in 60 ml glass jar with teflon septum cap Chilled	TCL Semi VOCs TCL Pesticides/PCBs in 250 ml glass jar. Chilled	Grain Size Analysis in 1 liter glass jar.		TOTAL BOTTLES	NOTES
~~Sed 10~~ RE 8-1-90 md SED-10	8-1-90	1300	1	1	1	1	1		5	TCL Semi VOCs not sent. Sent 8-2-90 md

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Herb Ernst	ROUX	8/1/90	23:00	[illegible]	EKCO 8-1-90	8/1/90	11:[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: SED-10 Matrix is soils.

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Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Woburn MA
Sampler(s): Martha Smith, Diane Miller

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL VOCs in 40 ml vial, preserved with HCL, Chilled	TCL Semi-VOCs in 1 liter amber glass bottle, Chilled	TCL Pesticides, PCBs in 1 liter amber glass bottle, Chilled	Carbonate poly bottle in 500 ml	TAL Metals in 1 liter poly bottle, preserved with HNO3, chilled	TOC in 40 ml glass vial, preserved with H2SO4, Chilled	TOTAL BOTTLES	NOTES
Trip Blank #2	8-1-90 8-1-90 FE ~~8-1-90 FE~~		2	1	1	1	1	2 ~~FE~~ MS FE 8-1-90	8	Water trip blanks for soils analysis
										13 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	8/1/90	3:00	[signature]	ERCO	8-1-90	11:00 am
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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ANALYSES

Project Name: ISRT-GSIP

Project Number: 066094

Project Location: Wappo. NA

Sampler(s): Brian Thomas, Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-15	8-1-90		1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	23:00	Norm Reilly	ERCO	8/2/90	11:00AM
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

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Project Name: JSRT-GSTP

Project Number: delivery

Project Location: Wilmington MA

Sampler(s): Brian Thomas Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-15	8-1-90		1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	23:00	Ron M. Reilly	ERG	8/2/90	11:00AM
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water.

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ANALYSES

Project Name: ISRT-GSIP
Project Number: [illegible]
Project Location: Wilmington, MA
Sampler(s): Brian Thomas, Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]			TOTAL BOTTLES	NOTES
SW-15	8-1-90		1	1	2	2			6	Total bottles 18 in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	Roux	8/1/90	23:00	[illegible]	ERCO	8/1/90	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

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Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herbert Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL Metals, Cr+3, hardness, Sn in liter poly bottles HNO3 chilled	TAL Semi-VOC's in liter amber glass bottles chilled	TCL Semi-VOC in liter amber glass bottles filtered chilled	TCL Pesticides/PCBs in liter amber glass bottles chilled	TCL Pesticides/PCBs in liter amber glass bottle filtered chilled	TAL Metals, Cr+3 hardness, Sn in liter poly bottles filtered HNO3 chilled	TOTAL BOTTLES	NOTES
SW-4	8/2/90	17:30	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	2205	[illegible]	ERCO	2 AUG 90	2205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

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Project Name: ESRT-GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herbert Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi VOCs, Pesticides/PCBs in liter amber bottles Chilled	TCL Semi VOC, Pesticides PCBs in liter amber bottles Filtered & Chilled	Tot. phosphorus, COD in 500 ml poly bottle, Preserved with H2SO4 Chilled	Tot phosphorus, COD in 500 ml poly bottle, Filtered, Preserved with H2SO4 Chilled	Orthophosphate, Sulfate, Chloride, Carbonate, Bicarbonate, Cyanide in liter poly bottle Chilled	Orthophosphate, Sulfate, Chloride, Carbonate, Bicarbonate, Cyanide in poly bottle, Filtered, Chilled	TOTAL BOTTLES	NOTES
SW-4	8/2/90	17:30	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	2205	[illegible]	ERID	8/2/90	2205

Delivery Method: Hand Delivered

Comments: Matrix is water

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HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSEP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 250 ml poly bottle preserved w/ 6N NaOH, zinc acetate chilled	Sulfide bottle 250 ml poly bottle filtered, NaOH, zinc acetate chilled	TOC in 40 ml glass vial preserved with H_2SO_4 chilled	TOC in 40 ml glass vial filtered, preserved with H_2SO_4, chilled			TOTAL BOTTLES	NOTES
SW-4	8/2/90	17:30	1	1	2	2			6	Total of 18 Bottles in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M Smith	ROUX	8-2-90	2205	[illegible]	ERCO	2 AUG 90	2205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water.

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: TSRT GSIP
Project Number: C6609Y
Project Location: Woburn MA
Sampler(s): B. Thomas H. Ernst

Sample Designation/Location	Date Collected	Time Collected	TAL Metals Tin, Cr3 hardness in 1 liter polybottle with HNO3 preserved chilled	TAL Metals Tin, Cr3 hardness in 1 liter polybottle filtered/preserved with HNO3 chilled	TCL Semi-VOCs in 1 liter amber glass bottle chilled	TCL Semi-VOCs in 1 liter amber glass bottle, filtered chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle, filtered chilled	TOTAL BOTTLES	NOTES
SW-5	8/2/90	13:15	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	10:05	GMMOCE	ERCO	2 AUG 90	2205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

ROUX

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Consulting Ground-Water
Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT 6518

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s): B. Thomas H. Frost

Sample Designation/Location	Date Collected	Time Collected	TCL Semi VOC / Pesticide and PCB in 1 liter amber glass bottle chilled	TCL Semi VOCs / Pesticides / PCBs in 1 Liter amber glass bottle / filtered chilled	Total Phosphorus, COD in 500 ml poly bottle preserved with H2SO4 chilled	Total Phosphorus COD in 500 ml poly bottle filtered / preserved with H2SO4 chilled	Orthophosphate / Sulfate / Chloride / Carbonate / Bicarbonate in 1 liter poly bottle chilled	Orthophosphate / Sulfate / Chloride / Carbonate / Bicarbonate in 1 liter poly bottle filtered chilled	TOTAL BOTTLES	NOTES
SW-5	8/2/90	13:15	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	10:05	A. Moore	ERCO	2 AUG 90	2205

Delivery Method: Hand delivered

Comments:

ROUX

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ROUX ASSOCIATES INC
775 PARK AVENUE
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Project Name: ISRT GSIP
Project Number: 06609Y
Project Location: Woburn MA
Sampler(s): B. Thomas H. Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Nitrate in 250 ml Poly bottle preserved w/ 2 ml NaOH	Poly bottle 250 ml preserved w/ 2 ml concentrated H2SO4	TOC in 40 ml glass vial, preserved w/ HCl, chilled	TOC in 40 ml glass vial, preserved w/ H2SO4, chilled			TOTAL BOTTLES	NOTES
SW-5	8/2/90	13:15	1	1	2	2			6	Total bottles 18 in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	10:05	[illegible]	ERCO	2AUG90	2205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: LSRT GSIP

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s):

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL Metals Tin, Cr^{+3} hardness in 1 liter poly bottle preserved with HNO_3 Chilled	TAL Metals, Tin, Cr^{+3} hardness in 1 liter poly bottle preserved with HNO_3 Chilled	TCL Semi-VOCs in 1 liter amber glass bottle	TCL Semi-VOCs in 1 liter amber glass bottle Chilled	TCL pesticides & PCBs in 1 liter amber glass bottle Chilled	TCL pesticides and PCBs in 1 liter amber glass bottle Chilled	TOTAL BOTTLES	NOTES
SW-6	8-2-90	0845	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	10:05	G. Moore	ERCO	8/2/90	2205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method

Comments

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775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT GSIP

Project Number: 06609Y

Project Location: Woburn Mass

Sampler(s):

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi VOCs, Pesticide PCBs in 1 Liter Amber Bottle Chilled	TCL Semi VOCs, Pesticide PCBs in 1 Liter Amber Bottle Chilled	Phosphorus, COD in Sol. Polybottle preserved with Chilled	Phosphorus, COD in Sol. Polybottle preserved with Chilled	Sulfate, Chloride, Carbonate, Nitrate, Nitrite, Alkalinity, TSS in 1 Liter Polybottle, Chilled	Sulfate, Chloride, Carbonate, Nitrate, Nitrite, Alkalinity, TSS in 1 Liter Polybottle, Chilled	TOTAL BOTTLES	NOTES
MW-6	8-2-90	0800	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	10:05	[illegible]	ERCO	2 AUG 90	2205

Delivery Method: hand delivered

Comments:

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ANALYSES

Project Name: ISRT GSIP

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s):

Sample Designation/Location	Date Collected	Time Collected	Cyanide 500ml polybottle preserved with NaOH and $Zn(C_2H_3O_2)_2$ chilled	Sulfide 500ml polybottle preserved with NaOH and $Zn(C_2H_3O_2)_2$ chilled	TOC in 40ml glass via preserved with H_2SO_4 chilled	TOC in 40ml glass via filtered preserved with H_2SO_4 chilled			TOTAL BOTTLES	NOTES
SW-6	8-2-90	1002	1	1	2	2			6	
										18 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	10:05	[illegible]		8/2	22:05
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method

Comments

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HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: IRT-WIP

Project Number: 06669Y

Project Location: Lowell MA

Sampler(s): Brian Thomas, Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	TAL metals, Cn, Cr+6, Hardness, Cl, Sulf, Nitr, Phos, Fluor, Alk, TDS, Chlorid, Sulfid, Phenol, HNO3 in 1 liter poly bottle, filtered, chilled	TAL metals, Hg, Cr+6, Hardness in 1 liter poly bottle, filtered, preserved with HNO3, chilled	TCL Semi-VOCs in 1 liter amber glass bottle, chilled	TCL Semi-VOCs in 1 liter amber glass bottle, filtered, chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle, chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle, chilled	TOTAL BOTTLES	NOTES
SW-12	8/2/90	11:00	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	8-2-90	22:05	[signature]	ERCO	8/6/90	1205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi-VOCs/Pesticides/PCBs in 1 liter amber glass bottle, Chilled	TCL Semi-VOCs/Pesticides/PCBs in 1 liter amber glass bottle, filtered, Chilled	Total phosphorus, COD in 500 ml poly bottle preserved with H_2SO_4, Chilled	Total phosphorus, COD in 500 ml poly bottle filtered, preserving with H_2SO_4, Chilled	Orthophosphate, Sulfate, Chloride, Cyanide, Bicarbonate, Carbonate in 1 liter poly bottle Chilled	Orthophosphate, Sulfate, Chloride, Cyanide, Bicarbonate, Carbonate in 1 liter poly bottle filtered, Chilled	TOTAL BOTTLES	NOTES
SW-12	8/2/90	11:00	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	8-2-90	1205	[signature]	ERCO	[illegible]	1205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSCP

Project Number: 066097

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 250 ml bottle preserved with NaOH + Zinc acetate Chilled	Sulfide in 250 ml bottle filled & preserved with NaOH + Zinc acetate Chilled	TOC in 40 ml glass vial preserved with H_2SO_4 Chilled	TOC in 40 ml glass vial filled & preserved with H_2SO_4 Chilled			TOTAL BOTTLES	NOTES
SW-12	8/2/90	1:00	1	1	2	2			8	Total Bottles 18 in Cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	8-2-90	1005	[signature]	ERCO	2 AUG 90	2205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: TSRT GSIP

Project Number: 066094

Project Location: Woburn MA

Sampler(s): Brian Thomas Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	TAL Metals, Tin, Cyanide hardness, preserved with HNO3, chilled	TAL Metals, Tin, Cyanide hardness, in 1 liter polybottle filtered, preserved with HNO3, chilled	TCL Semi-VOCs in 1 liter amber glass bottle chilled	TCL Semi-VOCs in 1 liter amber glass bottle filtered, chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle filtered, chilled	TOTAL BOTTLES	NOTES
SW-17	8-2-90	1630	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M Smith	ROUX	8-2-90	2205	[illegible]	ERLO	8-2-90	2205
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

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SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT GSIP
Project Number: 06609Y
Project Location: Woburn MA
Sampler(s): Brian Thomas Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi VOCs, Pesticide and PCBs in 1 liter amber glass bottle chilled	TCL Semi VOCs, Pesticide and PCBs in 1 liter amber glass bottle chilled	Orthophosphate, Total phosphorus, COD, in 500ml polybottle/preserved chilled	Orthophosphate, Total phosphorus, TSS in 500ml polybottle chilled	Sulfate, Chloride, Carbonate, bicarbonate, Cyanide in 1 liter polybottle chilled	Sulfate, Chloride, Carbonate, bicarbonate, Cyanide, TSS in 1 liter bottle filtered chilled	TOTAL BOTTLES	NOTES
SW-17	8-2-90	1630	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M Smith	ROUX	8-2-90	2205	[illegible]	FRED	[illegible]	[illegible]

Delivery Method: hand delivered

Comments: Matrix is water

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT GSIP

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Solids, Total (Preserved with NaOH and Zn(C2H3O2)2 chilled)	Cyanide, Total (Filtered, Preserved with NaOH and Zn(C2H3O2)2 chilled)	TOC in 40 ml glass vial preserved with H2SO4 chilled	TOC in 40 ml glass vial filtered preserved with H2SO4 chilled			TOTAL BOTTLES	NOTES
SW-17	8-2-90	1630	1	1	2	2			6	
										18 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	2205	[illegible]	[illegible]	[illegible]	[illegible]

Delivery Method: hand delivered

Comments: Matrix is water.

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL VOCs in 40 ml vial preserved with HCl Chilled	TCL Semi VOCs in 1 liter amber glass bottle, Chilled	TCL Pesticides + PCBs in 1 liter amber glass bottle Chilled	Carbonate in 500 ml poly bottle; Chilled	TAL metals Hexavalent in poly bottle, Preserved with HNO_3, Chilled	TOC in 40 ml glass vial Preserved with H_2SO_4, Chilled	TOTAL BOTTLES	NOTES
TRIP BLANK 4	8-2-90		2	1	1	1	1	2	8	Trip Blank for sediments except VOC also for water.
FB#1 (for sediments)	8-2-90	9:00	3	1	1	1	1	2	9	Field Blank #1
FB#1	8-2-90	8:00	3						3	
SW-6	8-2-90	8:00	3						3	
SW-12	8-2-90	11:00	3						3	
SW-5	8-2-90	13:15	3						3	
SW-17	8-2-90	1630	3						3	
SW-4	8-2-90	17:30	3						3	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	8-2-90	22:05	[signature]			22:15
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

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775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT · GSTP

Project Number: 066079

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL Metals and Tin Cyn in 250 ml wide mouth jar Chilled	Cr6 TOC, Total Carbonate, pH in 250 ml wide mouth glass jar Chilled	TCL VOCs in 60 ml glass jar with teflon septum cap Chilled	TCL Semi-VOCs, TCL Pesticides/PCBs in 250 ml glass jar. Chilled	Grain Size Analysis in 1 liter glass jar		TOTAL BOTTLES	NOTES
SED-6	8-2-90	0800	1	1	1	1	1		5	
SED 16	8-2-90	1000	1	1	1	1	1		5	
SED 12	8-2-90	1100	1	1	1	1	1		5	
SED-5	8-2-90	1400	1	1	1	1	1		5	
SED-17	8-2-90	1630	1	1	1	1	1		5	
SED-4	8-2-90	1730	1	1	1	1	1		5	
SED-10	8-1-90	1300				1			1	Sample put on 8-1-90 COC, but left out of cooler
										Lab bottles in coolers

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	8-2-90	2205	[signature]		8/2	22:15
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is soil

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CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
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775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP

Project Number: 06G09Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL metals, tin, Cr3 hardness in 1 liter poly bottle preserved with HNO3, Chilled	TAL metals, tin, Cr3 hardness, in 1 liter poly bottle Filtered, preserved with HNO3, Chilled	TCL Semi-VOCs in 1 liter amber glass bottle Chilled	TCL Semi-VOCs in 1 liter amber glass bottle Filtered, Chilled	TCL pesticides/PCBs in 1 liter amber glass bottle, Chilled	TCL pesticides/PCBs in 1 liter amber glass bottle, Filtered, Chilled	TOTAL BOTTLES	NOTES
FB-1	8/2/90	0800	1	1	1	1	1	1	6	Field Blank for water analysis

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Marilyn Smith	ROUX	8-2-90	10:05	[illegible]	ERCO	[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered.

Comments: Matrix is water.

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CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi-VOCs/Pesticides PCBs in 1 liter amber glass bottle, Chilled	TCL Semi-VOCs Pesticides PCBs in 1 liter amber glass bottle, Filtered, Chilled	Total phosphorous, COD in sec. poly bottle, H2SO4, Chilled	Total phosphorous, COD in sec. poly bottle, Filtered, H2SO4 Chilled	Orthophosphate, Sulfate, Fluoride, Carbonate, Bicarbonate, Cr6 in 1 liter poly bottle Chilled	Orthophosphate, Sulfate, Chloride, Carbonate, Bicarbonate, Cr6 in 1 liter poly bottle Filtered, Chilled	TOTAL BOTTLES	NOTES
FB-1	8/2/90	0800	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-2-90	10:05	[illegible]	ERCO	2AUG90	2205

Delivery Method: hand delivered

Comments: Matrix is water.

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP
Project Number: 06609Y
Project Location: Wilburn, MA
Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 250 ml poly bottle, preserved with NaOH, Zinc acetate, Chilled	Sulfide in 250 ml poly bottle, Filtered, preserved with NaOH, Zinc acetate, Chilled	TOC in 40 ml glass vial, preserved with H_2SO_4, Chilled	TOC in 40 ml glass vial, preserved with H_2SO_4, Filtered, Chilled			TOTAL BOTTLES	NOTES
FB-1	8/2/90	0800	1	1	2	2			6	Total bottles 12 in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M Smith	ROUX	8-2-90	10:05	[illegible]	ERCO	2 AUG 90	2205

Delivery Method: hand delivered

Comments: Matrix is water.

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CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
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HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: IGRT. USIP

Project Number: 0610.001Y

Project Location: Wood J., NY

Sampler(s): Brian Thomas, John Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-1	8/3/90	9.50	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	21:35				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP

Project Number: [illegible]

Project Location: Lawrence, MA

Sampler(s): Brian Thomas, Hulda Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-1	8/3/92	9:50	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-92	21:35				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Hand delivered

Comments: Matrix is water

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT-GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Hughes, Hubert

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]			TOTAL BOTTLES	NOTES
SW-1	8/7/90	9:50	1	1	2	2			6	
										18 bottles total in cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	21:35	[illegible]			
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP

Project Number: 0060AY

Project Location: Wilson, MA

Sampler(s): P. Thomas H Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-2	8-3-90	0800	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	2135	[illegible]	[illegible]	[illegible]	[illegible]
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT-GSEP

Project Number: 06607Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Kirk Ernst

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL BOTTLES	NOTES
SW-2	8 3 90	0800	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	2135	[illegible]	[illegible]	[illegible]	

Delivery Method: hand delivered

Comments: Matrix is water

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: JSRT CWTP

Project Number: [illegible]

Project Location: Lowell, MA

Sampler(s): Rich Thomas, Holly Frost

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	[illegible]	[illegible]	[illegible]	[illegible]			TOTAL BOTTLES	NOTES
SW-2	8-3-90	0800	1	1	2	2			6	
										18 bottles total in coolers

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	21:35	[illegible]			
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Matrix is water

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT-GSIP

Project Number: 066074

Project Location: Woburn, MA

Sampler(s):

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL Metals (inc. Cr+3, hardness) in 1 liter poly bottle, Preserved with HNO3, Chilled	TAL Metals (inc. Cr+3, hardness) in 1 liter poly bottle, Filtered, preserved with HNO3, Chilled	TCL Semi-VOCs in 1 liter amber glass bottle, Chilled	TCL Semi-VOCs in 1 liter amber glass bottle, Filtered, Chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle, Chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle, Filtered, chilled	TOTAL BOTTLES	NOTES
SW-8	8/3/96	11:45	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-96	18:35	[illegible]	[illegible]		
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT-GSIP

Project Number: 06604Y

Project Location: Woburn, MA

Sampler(s):

Sample Designation/Location	Date Collected	Time Collected	TCL Semi-VOCs, Pesticides, PCBs in 1 liter amber glass bottle. Chilled	RCL Semi-VOCs, Pesticides, PCBs in 1 liter amber glass bottle. Filtered. Chilled	~~Orthophosphate~~. Total phosphorus COD in 500ml poly bottle preserved with H_2SO_4, chilled	~~Orthophosphate~~, Total Phosphorus COD in 500ml poly bottle filtered, H_2SO_4, chilled	Sulfate, Chloride, carbonate, bicarbonate, Co 16, TSS in 1 liter poly bottle. Chilled	Sulfate, chloride, carbonate, bicarbonate, Co 16, TSS in 1 liter poly bottle, filtered, chilled	TOTAL BOTTLES	NOTES
SW-8	8/3/90	11:45	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M Smith	ROUX	8-3-90	2135	[illegible]			
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method	Comments

ROUX

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775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSIP

Project Number: 066094

Project Location: Woburn, MA

Sampler(s):

Sample Designation/Location	Date Collected	Time Collected	Sulfate in 500 ml poly bottle preserved with NaOH/ZnAcetate, chilled	Sulfide in 500 ml poly bottle preserved with NaOH/ZnAcetate, chilled	TOC in 40 ml glass bottle preserved with HCl, chilled	TOC in 40 ml glass bottle preserved with HCl, chilled			TOTAL BOTTLES	NOTES
SW-8	8/3/90	11:45	1	1	2	2			6	
										18 bottles total in cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	2135	[illegible]	[illegible]		

Delivery Method: hand delivered

Comments:

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775 PARK AVENUE
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HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	TAL metals + hardness in 1 liter poly bottle, Filtered, HNO3, Chilled	TAL metals + hardness in 1 liter poly bottle, Filtered, HNO3, Chilled	TCL Semi-VOCs in 1 liter amber glass bottle Chilled	TCL Semi-VOCs in 1 liter amber glass bottle, Filtered, Chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle, Chilled	TCL Pesticides/PCBs in 1 liter amber glass bottle, Filtered, Chilled	TOTAL BOTTLES	NOTES
SW-100	8/3/90	11:45	1	1	1	1	1	1		

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	19:35				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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CHAIN OF CUSTODY

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ROUX ASSOCIATES INC
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SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSEP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Semi VOCs/Pesticides/PCBs in 1 liter amber glass bottle, Chilled	TCL Semi VOCs/Pesticides/PCBs in 1 liter amber glass bottle, Filtered, Chilled	Tot. Phosphorus, COD in 500 ml poly bottle preserved with H2SO4, Chilled	Tot. Phosphorus, COD in 500 ml poly bottle Filtered, preserved with H2SO4, Chilled	Ortho phosphate, Sulfate, Chloride, Ammonia, Bicarbonate in 1 liter poly bottle Chilled	Orthophosphate, Sulfate, Chloride, Ammonia, Bicarbonate in 1 liter poly bottle Filtered, Chilled		TOTAL BOTTLES	NOTES
SW-100	8/3/90	11:45	1	1	1	1	1	1			

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	1735	[illegible]			
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

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Comments:

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775 PARK AVENUE
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ANALYSES

Project Name: ISRT-GSIP

Project Number: [illegible]

Project Location: Wilson, MA

Sampler(s): Brian Munos, Wm Ernst

Sample Designation/Location	Date Collected	Time Collected	VOC	VOC	[illegible]	[illegible]				TOTAL BOTTLES	NOTES
SW-100	8/3/90	11:45	1	1	2	2					

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	2135	[illegible]	[illegible]		
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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CHAIN OF CUSTODY

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: TSRT-GS1P

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Martha Smith, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TAL Metals and Tin, Cr+3 in 250 ml aluminum glass jar, Chilled	Cr+6, TOC, Total Cyanide, pH in 250 ml glass jar and wide mouth	TCL VOCs in 66 ml glass jar with teflon septum cap, Chilled	TCL Semi-VOCs, TCL Pesticides/PCBs in 250 ml glass jar, Chilled	Grain Size analysis in 1 liter glass jar		TOTAL BOTTLES	NOTES
SED-2	8-3-90	800	1	1	1	1	1		5	
SED-1	8-3-90	9:50	1	1	1	1	1		5	
SED-8	8-3-90	11:45	1	1	1	1	1		5	
SED-3	8-3-90	1400	1	1	1	1	1		5	
SED 100	8-3-90	11.45	1	1	1	1	1		5	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	2135	[illegible]			

Delivery Method: hand delivered

Comments:

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CHAIN OF CUSTODY

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL VOCs in 40 ml vial preserved with HCl Chilled	TCL Semi VOCs in 1 liter amber glass bottle, Chilled	TCL Pesticides + PCBs in 1 liter amber glass bottle Chilled	Cyanide in 500 ml poly bottle, Chilled	TAL metals, Tin, Cr+3 in 1 liter poly bottle preserved with HNO_3 Chilled		TOTAL BOTTLES	NOTES
TRIP BLANK #5	8-3-90		2	1	1	1	1		6	TRIP BLANK w 5 VOCs have air bubbles mrd.
~~TRT~~	~~8-3-90~~ RE mrd 8-3-90	~~0800~~								
SW-2	8-3-90	0800	3						3	
SW-1	8-3-90	0930	3						3	
SW-8	8-3-90	1145	3						3	
SW-100	8-3-90	1145	3						3	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Marsha Smith	ROUX	8-3-90	21:35	[illegible]	Epco		

Delivery Method: hand delivered

Comments: Matrix is water, Trip Blank #5 for sediment samples except for VOCs which is also for water.

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Martha Smith

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL VOCs in 60ml glass jar with septum cap Chilled	TCL Semi-VOCs, TCL Pest/PCBs in 250 ml glass jar Chilled	TAL Metals in 250 ml glass jar Chilled				TOTAL BOTTLES	NOTES
Core #1 0.2'-0.5'	8-3-90	1700			1				1	
Core #1 0.5'-0.9'	8-3-90	1700	1	1	1				3	If possible, analyze also for TCL and pH. (matrix from Semi VOCs bottle)
										47 bottles total in cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	2135				

Delivery Method	Comments
hand delivered	Matrix is soil.

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn MA

Sampler(s): M. Smith, B. Thomas, H. Ernst

Sample Designation/Location	Date Collected	Time Collected	Chemical (first 4 Hg/Pb); separate Sn, organotin, Hg in separate glass bottle; chilled	Fe, Zn in HDPE glass bottle preserved with HCl, chilled.	Chemical (first 4 Hg, Pb, Sn); separate Sn, organotin, Hg in separate glass wide mouth jar				TOTAL BOTTLES	NOTES
SW-14	7-31-90	0930	2	2		5				
Sed-14	7-31-90	0930			1					
SW-13	7-31-90	1330	2	2						
Sed-~~13~~ 12 (RE 7-31-90) Sed-13	7-31-90	~~1330~~ 1630			1					
SW-11	7-31-90	1700	2	1						
Sed-11	7-31-90	1700			1					
SW-15	8-1-90	1450	2	2						
SED-15	8-1-90	1450								
SW-17	8-1-90	1810	2	2						
SED-17	8-1-90	1800			1					
SW-10	8-1-90	1245	2	2						
SED-10	8-1-90	1300			1					
SW-9	8-1-90	0938	2	2						
SED-9	8-1-90	0945			1					

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	8-1-90	19:00				

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Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 11743

2 To (Recipient's Name) Please Print: Jane Lindsey/John Sherwell
Recipient's Phone Number (Very Important): (512) 451 4777
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 8501 No Tag Blvd.
City: Austin State: Texas ZIP Required: 78759

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Expiration Date

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11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

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70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

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*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [ ] HOLD FOR PICK-UP (Fill in Box 4)
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ]
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5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT (In Pounds Only)	*DECLARED VALUE (See rate)	OVER SIZE
Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only)
[ ] ____ Lbs.

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Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISED DATE 11/89
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ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
776 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

Sample Designation/Location	Date Collected	Time Collected	(Inorganic forms of As, Pb, Cd) organic Sn; amber glass bottle; chilled	Ferrous in 40ml glass vial; preserved with HCl; (chilled)	(Chemical forms of As, Hg, Pb) organic Sn; inorganic mercury; amber glass jar				TOTAL BOTTLES	NOTES
~~Field~~ w.s. FB#1	8-2-90	0800	2	2					4	water sample
SW-6	8-2-90	0800	2	2					4	water sample
SED-6	8-2-90	0800			1				1	sediment
SED-16	8-2-90	1000			1				1	sediment
SW-12	8-2-90	1100	2	2					4	water
SED-12	8-2-90	1100			1				1	sediment
SW-5	8-2-90	1315	2	2					4	water
SED-5	8-2-90	1400			1				1	sediment
SW-17	8-2-90	1630	2	2					4	water
SW-4	8-2-90	1730	2	2	1				4	water
SED-17	8-2-90	1630			1				1	sediment
[illegible]	8-2-90	1730			1				1	sediment
										30 bottles total in cooler.

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M Smith	Roux	8-2-90	1850				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
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170N 7832701774

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Sender's Federal Express Account Number: 1068-0540-7
Date: 8-2-90

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Your Phone Number (Very Important): (516) 673-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON
State: NY
ZIP Required: 11743

To (Recipient's Name) Please Print: Jane Lindsey/John Sherwell
Recipient's Phone Number (Very Important): (512) 474-4777
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (No Postal Delivery): 8501 No Pac Blvd.
City: Austin
State: Texas
ZIP Required: 78759

Your Internal Billing Reference Information (First 24 characters will appear on invoice): CHROMY

Payment: [X] Bill Sender [ ] Bill Recipient [ ] Bill Third Party Acct. No. [ ] Bill Credit Card
[ ] Cash
Expiration Date

HOLD FOR PICK-UP (Not FedEx Address Here)
Street Address:
City:
State:
ZIP Required:

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11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon)
[ ] FEDEX LETTER
[ ] FEDEX PAK*
[ ] FEDEX BOX
[ ] FEDEX TUBE

Economy Service (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
[ ] HEAVYWEIGHT
60 [ ] DECLARED VALUE HEAVYWEIGHT**

†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING

1 [ ] HOLD FOR PICK-UP
[X] DELIVER WEEKDAY
2 [ ] DELIVER SATURDAY
4 [ ] DANGEROUS GOODS
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS)
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY

Packages	Weight (In Pounds Only)	Your Declared Value (Optional)	Charges
Total	Total	Total	

DIM SHIPMENT (Heavyweight Service Only)
[ ] ____ Pcs.

Received At:
1 [ ] Regular Stop
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4 [ ] B.S.C.
5 [ ] Station

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Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/89
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ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06607Y

Project Location: Woburn, MA

Sampler(s): Brian Thomas, Herb Ernst

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Chemical Forms of As, Hg, Se; organic Sn; organic Hg in 500 ml glass bottle; Chilled	Fe2+ in 40 ml glass vial preserved with HCL; Chilled	Chemical forms of As Hg Se; organic Sn; organic Hg; inorganic Hg; in 250 ml glass jar; chilled	Chemical forms of As, Hg, Se; organic Sn; organic Hg; inorganic Hg; in 500 ml glass jar; chilled				TOTAL BOTTLES	NOTES
SW-100	8-3-90	11:45	2	2							
SW-8	8-3-90	11:45	2	2							
SW-1	8-3-90	9:50	2	2							
SW-2	8-3-90	8:00	2	2							
SED-3	8-3-90	14:00			1						
Field Blank #1	8-3-90	11:15				2					field blank for sediments
SED-8	8-3-90	11:45			1						
SED-1	8-3-90	9:50			1						
SED-100	8-3-90	11:45			1						
SED-2	8-3-90	8:00			1						

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha Smith	ROUX	8-3-90	1830				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Federal Express Airbill # 7832701556

Comments:

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Date: 8-3-90

From (Your Name) Please Print: Mark Smith
Your Phone Number (Very important): 516-673-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 11743

To (Recipient's Name) Please Print: Jim Lowry
Recipient's Phone Number (Very Important): 512 1454 4797
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes): 9504 Jollyville Drive
City: Austin State: TX ZIP Required: 78758

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12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER*
52 [ ] FEDEX PAK*
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54 [ ] FEDEX TUBE

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30 [ ] ECONOMY SERVICE

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70 [ ] HEAVYWEIGHT**
80 [ ] DEFERRED HEAVYWEIGHT**

†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

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1 [ ] HOLD FOR PICK-UP (Fill in Box 14)
2 [ ] DELIVER WEEKDAY
3 [X] DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge) (Not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT (In Pounds Only)	DECLARED VALUE (Whole $ Only)	FOR FEDEX USE ONLY
1			
Total	Total	Total	

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APPENDIX B

Field Documentation and Chain of Custody Forms

Section 8. Sewer-Water Sampling Logs and Chain of Custody Forms

Part 1. Sewer-Water Sampling Logs

TRUNK SEWER SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SR-1

DATE 4-25-90
SAMPLE TIME 1110
WEATHER RAINING, 45°F
COLLECTOR'S INITIALS JY, EJ

PHYSICAL APPEARANCE/CHARACTERISTICS: Water is flowing at a high rate. Water is gray and very cloudy.

FIELD MEASUREMENTS:

TIME	pH	COND	TEMP	Eh	O_2	Depth to Water from Manhole	Approximate Depth of Water
1110	7.04	710 µS/cm	(11°C in situ) 12°C	213.6 mV ⇓ 222.1 mV (corrected)	4.6 mg/l	–	0.4 ft

SAMPLES COLLECTED:

- One full suite of sewer water samples collected and sent to ENSECO-ERCO, Cambridge, MA.
- Two bottles for metal speciation sent to Radian, Austin TX and two bottles for Fe^{+2}.

COMMENTS: No sediment in sewer line. No sediment sample collected.

TRUNK SEWER SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SR-2

DATE 4-24-90
SAMPLE TIME 1330
WEATHER Sunny, 70°F
COLLECTOR'S INITIALS JY, EJ, MS

PHYSICAL APPEARANCE/CHARACTERISTICS: Water in sewer flowing rapidly. Water has grayish tint, cloudy and with suspended particulate matter.

FIELD MEASUREMENTS:

TIME	pH	COND	TEMP	Eh	Q	Depth to Water from Manhole	Approximate Depth of Water
1330	7.28	600 µS/cm	15°C (11°C in situ)	+126.0 mV 134.5 mV Corrected	4.6 mg/l	11.1 ft	0.4 ft

SAMPLES COLLECTED:
Roux collects one full suite of sewer water samples. NUS collects primary and duplicate set of samples as listed below.

COMMENTS: Sample designated SR-2; 1330.
There is no sediment in pipe. No sediment samples collected.
Roux samples sent to Ensaco-Eco, Cambridge Ma; and two bottles for metal speciation sent to Radian, Austin Tx and Two vials for Fe^{+2} to Radian.
NUS Samples. Each set consists of the following:

2 VOA (40 ml vials)
1 BNA (80 oz jar)
1 Pest/PCB (80 oz jar)
1 total metals (1 liter)
1 CN (1 liter)
1 Tin (1 liter)

Doc #MO06609Y.7.8

TRUNK SEWER SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SR-3

DATE 4-26-90
SAMPLE TIME 1100
WEATHER CLOUDY 58°F
COLLECTOR'S INITIALS JY, EJ

PHYSICAL APPEARANCE/CHARACTERISTICS: Black liquid, very high turbidity, high flow rate. Color of water changes from black to gray to black again

FIELD MEASUREMENTS:

TIME	pH	COND	TEMP	Eh	O_2	Depth to Water from Manhole	Approximate Depth of Water
1200	7.47	1610 µS/cm	14°C (in situ) 16°C	263.5 mV	5.9 mg/l	11.39 ft	0.5 ft

277.0 mV corrected

SAMPLES COLLECTED:

Two full sets of sewer water collected and sent to Enviro-Tech Cambridge, Ohio
Primary set designated SR-3 ; 1100
Duplicate set designated SR-100 ; 1130
Two bottles for metal spectrum and 2 vials for Fe^{++} test for each to Radian, Austin TX.

COMMENTS: No sediment in sewer line. High flow rate prevented in-situ temperature probe from remaining submerged. Fluid here much darker than at SR-4.
Strong paint odor in air from adjacent factory. Odors within sewer line changed during sampling.

TRUNK SEWER SAMPLING

ROUX ASSOCIATES, INC.
PROJECT #06609Y, ISRT GSIP

SAMPLING LOCATION SR-4

DATE 4-26-90
SAMPLE TIME 0930
WEATHER CLOUDY, ~50°F
COLLECTOR'S INITIALS JY, EJ

PHYSICAL APPEARANCE/CHARACTERISTICS: GRAY LIQUID; SUSPENDED PARTICULATE MATTER. HIGH FLOW VELOCITY IN SEWER LINE.

FIELD MEASUREMENTS:

TIME	pH	COND	TEMP	Eh	O_2	Depth to Water from Manhole	Approximate Depth of Water
0915	7.34	780 mS/cm	11°C (in situ)	+132.5 mV	3.4 mg/l	9.35 ft	

141.0 mV Corrected

SAMPLES COLLECTED:

- ONE FULL SUITE OF SEWER WATER SAMPLES TO ENSECO-ERCO, CAMBRIDGE, MASS.
- TWO BOTTLES FOR METAL SPECIATION AND TWO VIALS FOR Fe^{+2} TO RADIAN, AUSTIN TX.

COMMENTS: NO SEDIMENT IN SEWER LINE.

APPENDIX B

Field Documentation and Chain of Custody Forms

Section 8. Sewer-Water Sampling Logs and Chain of Custody Forms

Part 2. Sewer-Water Sampling Chain of Custody Forms

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 256
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Yeary, E. Jorgenson, E. Jorgenson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Metals, Zinc, Cr+3 in 500 ml poly bottle; preserved with HNO3; Chilled	TCL VOCs in 40 ml glass vial; preserved with HCl; Chilled	TCL Semi-VOCs in 1 liter amber glass bottle; Chilled	TCL Pesticides and TCL PCBs in 1 liter amber glass bottle; Chilled	Sulfate, chloride, carbonate, bicarbonate, Cr+6 in 1 liter poly bottle; Chilled	Total & Available phosphorus, chemical oxygen demand, phosphate, TSS in 500 ml poly bottle; Preserved in H2SO4; Chilled	TOTAL BOTTLES	NOTES
SR-1 water	4-25-90	1110	1	3	1	1	1	1	8	
Trip Blank #2	4-25-90			1					1	
									9	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric M Jorgenson	ROUX	4/25/90	2125	[illegible]	ERCO	4/25/90	2125
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Sewer water samples

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yeary, E. Jorgeson, E. Jorgeson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 500 ml poly bottle, preserved with NaOH and Zn(C2H3O2)2, Chilled	Total Organic Carbon in 40 ml glass vial, preserved with H2SO4, Chilled	TCL Metals, Tin, Cn, S in 500 ml poly bottle, filtered, HNO3, Chilled	TCL Semi-VOCs in filter amber glass bottle, filtered, Chilled	TCL Pesticides and TCL PCBs in filter amber glass bottle, filtered, Chilled	Sulfate, chloride, carbonate, bicarbonate, Ca+2 in poly bottle, filtered, Chilled	TOTAL BOTTLES	NOTES
SR-1, water	4-25-90	1110	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric M Jorgeson	ROUX	4/25/90	2125	[illegible]	ERCO	4/26/90	2125
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Sewer water samples

ROUX

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ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT- GSIP
Project Number: 066094
Project Location: Woburn, MA
Sampler(s): J. Yeary, E. Jorgeson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide (in 50 ml poly bottle, preserved with NaOH and Zn (C2H3O2)2) (chilled)	Total Organic Carbon in 40 ml glass vial preserved with H2SO4 (chilled)	Total and available phosphorus (ortho phosphorus) (filtered), H2SO4 (chilled) (in 500 ml poly bottle)				TOTAL BOTTLES	NOTES
SR-1 water	4-25-90	1110	1	1	1				3	
										18 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric M Jorgeson	ROUX	4/25/90	2125	[illegible] FPR	ERCO	4/25/90	2125
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments: Sewer water samples

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HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): M. Smith, J. Yeary, E. Jorgensen

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Metals, 1 liter poly bottle, preserved with HNO3, Chilled	TCL VOCs, in 40ml glass vials, preserved with HCL, chilled	TCL Semi-VOCs in 1 liter amber glass bottle, Chilled	TCL Pesticides and PCBs, in 1 liter amber glass bottle, Chilled	Sulfate, chloride, cadmium, bicarbonate, fe, 1 liter poly bottle, Chilled	Total and available phosphorus, phosphate, (ortho phosphate), COD, TSS in 500ml poly bottle, preserved with H_2SO_4, Chilled	TOTAL BOTTLES	NOTES
SR-2-water	4-24-90	1330	1	3	1	1	1	1	8	(matrix-water)
SR-FB#1	4-24-90	1515	1	3	1	1	1	1	8	(matrix-water)
Trip Blank #1	4-24-90			1					1	(matrix-water)

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric M Jorgensen	ROUX ASSOC	4/24/90	2140	[illegible]	EUSECO	4/24/90	2140
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): M Smith J. Young E Jorgensen E. Jorgenson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 500ml poly bottle, preserved with NaOH, Zn(C2H3O2)2, chilled	TOC in 40ml glass vial, preserved with H2SO4, chilled	TCL Metals, Cn, Cr3 in 1 liter poly bottle, filtered, preserved with HNO3, chilled	TCL Semi-VOCs in 1 liter amber glass bottle, filtered, chilled	TCL Pesticides and TCL PCBs in 1 liter amber glass bottle, filtered, chilled	Sulfate, chloride, carbonate, bicarbonate, Ca, K in 1 liter poly bottle, filtered, chilled	TOTAL BOTTLES	NOTES
SR-2 - water	4-24-90	1330	1	1	1	1	1	1	6	(matrix - water)
SR-FB#1	4-24-90	1515	1	1	1	1	1	1	6	(matrix - water)

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Ellen M Jorgensen	ROUX ASSOCIATES	4/24/90	2140	[illegible]	ENSECO	4/24/90	2140
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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ANALYSES

Project Name: IBRT - GSTP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): M Smith, J. Yerky, E. Jorgensen

Sample Designation/Location	Date Collected	Time Collected	Total and volatile organics (extractable organics) in 500ml poly bottles, preserved with H_2SO_4	Sulfide in 500ml poly bottle, filtered, preserved with NaOH and Zn $(C_2H_3O_2)_2$, chilled	TOC in 40 ml glass vial filtered, preserved with H_2SO_4, chilled				TOTAL BOTTLES	NOTES
SR-2-water	4-24-90	1330	1	1	1				3	(matrix - water)
SR-FB#1	4-24-90	1515	1	1	1				3	(matrix - water)

35 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Eric M Jorgensen	ROUX ASSOC.	4/24/90	2140	Richard D Matter	EASECO	4/24/90	2140
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: hand delivered

Comments:

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HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yancy, E. Jorgeson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Metals, Tin, Cn's in 500 ml poly bottle; preserved with HNO3; Chilled	TCL VOCs in 40 ml glass vial; preserved with HCl; Chilled.	TCL Semi-VOCs in 1 liter amber glass bottles Chilled	TCL Pesticides and TCL PCBs in 1 liter amber glass bottle; Chilled	Sulfate, chloride, carbonate, bicarbonate, Cr6, TSS in 1 liter poly bottle; Chilled	Total and available phosphorus (ortho-phosphate) poly bottles, COD in 500 ml poly bottle, H2SO4, Chilled	TOTAL BOTTLES	NOTES
SR-4, water	4-26-90	0930	1	3	1	1	1	1	8	
SR-100, water	4-26-90	1130		3					3	
SR-3, water	4-26-90	1100		3					3	
Trip Blank #3	4-26-90			1					1	
									15	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	4-26-90	1700	Martha M. Smith	ROUX	4-26-90	1700
Martha M. Smith	ROUX	4-26-90	1755				
				Janet M. Sachs	ERCO	4-26-90	1755

Delivery Method	Comments
hand delivered	sewer water samples

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Project Name: ISRT - GSTP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Young, E. Jorgison

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide in 500 ml poly bottle, preserved with NaOH/ZnAc, chilled	TOC in 40 ml glass vial, preserved with H_2SO_4, chilled	TCL Metals, Zn, Cr in 500 ml poly bottle, filtered, chilled	TCL Semi-VOCs in 1 liter amber glass bottle, chilled	TCL Pesticides and TCL PCBs in 1 liter amber glass bottle, filtered, chilled	Sulfide, chloride, cyanide, bicarbonate, Cr+6 in 1 liter poly bottle, filtered, chilled	TOTAL BOTTLES	NOTES
SR-4, water	4-26-90	0930	1	1	1	1	1	1	6	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	Roux	4-26-90	1700	Martha M. Smith	ROUX	4-26-90	1700
Martha M. Smith	ROUX	4-26-90	1755				
				Janet M. Sacha	ERCO	4-26-90	17:55

Delivery Method: hand delivered

Comments: Surface bottle not preserved - add NaOH and $Zn(C_2H_3O_2)_2$ at lab.
Seven water samples

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
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HUNTINGTON, NEW YORK 11743

Project Name: TSRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yeany, E. Jorgison

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	Sulfide (in 50 ml poly bottle, filtered, preserved with NaOH and Zn(C2H3O2)2, Chilled)	TOC (in 40 ml glass vial, preserved with H2SO4, Chilled)	Total and available phosphorus (or the phosphorus COD), filtered, H2SO4, chilled (in 500 ml poly)				TOTAL BOTTLES	NOTES
SR-4, water	4-26-90	0930	1	1	1				3	
										24 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	4-26-90	1700	Martha M. Smith	ROUX	4-26-90	1700
Martha M. Smith	ROUX	4-26-90	1755				
				Janet M. Sacks	ERCO	4-26-90	1755

Delivery Method:

Comments:

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP
Project Number: 06609X
Project Location: Woburn MA
Sampler(s): J. Yeary, E. Jorgeson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TCL Metals, 1 in Cr3 in 500ml poly bottle, HNO3, (Chilled)	TCL Semi VOCs in 1 liter amber glass bottle, (Chilled)	TCL Pesticides and TCL PCBs in 1 liter amber glass bottle, (Chilled)	Sulfate, chloride, carbonate, bicarbonate, (+ TSS in 1 liter poly bottle, (Chilled)	Total and available phosphorus (ortho phosphorus) (COD in 500ml poly bottle, Chilled)	Sulfide in 500ml poly bottle, preserved w/ NaOH and 2 N $(Zn(CH_3CO_2)_2)$, (Chilled)	TOTAL BOTTLES	NOTES
SR-3, water	4-26-90	1100	1	1	1	1	1	1	6	
SR-100, water	4-26-90	1130	1	1	1	1	1	1	6	
									12	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[signature]	ROUX	4-26-90	1700	Martha Smith	ROUX	4-26-90	1700
Martha M. Smith	ROUX	4-26-90	1750				
				[signature]	ERCO	4-26-90	17:50

Delivery Method: hand delivered

Comments: sewer water samples

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP
Project Number: 06609Y
Project Location: Woburn, MA
Sampler(s): J. Yerry, Janet Zoey, E. Jorgeson

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TOC in 40 ml glass vial preserved with H_2SO_4; Chilled	TCL Metals, Hg, Cr6 in 500 ml poly bottle, filtered, HNO_3, Chilled	TCL Semi VOCs in 1 liter amber glass bottle, filtered, Chilled	TCL Pesticides and PCBs in 1 liter amber glass bottle, filtered, Chilled	Sulfate, Chloride, Carbonate, Bicarbonate, Cr6 in poly bottle, filtered, Chilled	Sulfide in 500 ml poly bottle, filtered, preserved with NaOH and Zn ($ZnAc_2$), Chilled	TOTAL BOTTLES	NOTES
SR-3, water	4-26-90	1100	/	/	/	/	/	/	6	
SR-100, water	4-26-90	1130	/	/	/	/	/	/	6	
									12	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	ROUX	4-26-90	1700	Martha Smith	ROUX	4-26-90	1700
Martha M. Smith	ROUX	4-26-90	1750				
				Janet M. Sachs	ERCO	4-26-90	17:50

Delivery Method: hand delivered

Comments: sewer samples

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. [illegible] E. Jorgison

ANALYSES

Sample Designation/Location	Date Collected	Time Collected	TOC, in 40 ml glass vial, filtered, preserved with H2SO4, chilled.	Total and available phosphorus, ortho phosphate, phosphate, filtered, H2SO4 chilled in 500 ml poly bottle.					TOTAL BOTTLES	NOTES
SR-3, water	4-26-90	1100	/	/					2	
SR-100, water	4-26-90	1130	/	/					2	
										28 bottles total in cooler
									4	

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
[illegible]	ROUX	4-26-90	1700	Martha M. Smith	ROUX	4-26-90	1700
Martha M. Smith	ROUX	4-26-90	1750				
				Janet M. Sachs	ERCO	4-26-90	17:50

Delivery Method: hand delivered

Comments: Sewer water samples

ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): M. Smith, M. Smith J. Yeany E. Jorgeson

Sample Designation/Location	Date Collected	Time Collected	Total and Volatile forms of As, Hg, Pb; Organic Sn. Organics in 500 ml. amber glass bottles Chilled	Fe ++ in 40 ml glass vial, Preserved with HCL, Chilled.					TOTAL BOTTLES	NOTES
SR-2-Water	4-24-90	1330	2	2					4	
SR-FB#1	4-24-90	1515	2	2					4	
										8 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Martha M. Smith	ROUX	4-24-90	1930				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

Delivery Method: Federal Express

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Date: 4 2 1 90

1 From (Your Name) Please Print: Martha M. Smith
Your Phone Number (Very Important): (516-673-720
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 11743

2 To (Recipient's Name) Please Print: Jack Lindsey
Recipient's Phone Number (Very Important): (512) 454-477
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes): 8501 Mo-Pac Blvd
City: Austin State: TX ZIP Required: 78759

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3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash
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16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

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30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
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†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING

1 [ ] HOLD FOR PICK-UP (Fill in Box 4)
2 [ ] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge) [ ]
4 [ ] DANGEROUS GOODS (Extra charge) (CSS not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE _____ Lbs.
7 [ ] OTHER SPECIAL SERVICE _____
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT In Pounds Only	Value Declared Value (Plus cents)	Cents Omit
1	17		
Total 1	Total 17	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] _____ lbs.

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1 [ ] Regular Stop 3 [ ] Drop Box
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Other 1
Other 2
Total Charges

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ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC

775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

ANALYSES

Add 4-27-90 Donna do of flux - Spoke to Patricia

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): E. Jorgensen, E. Jorgensen, J. Yeacy, Donna Yeacy

Sample Designation/Location	Date Collected	Time Collected	Total Individual Hg, Pb and Organics (5x) in 500 ml glass bottle, Chilled	Fe, Zn in 40 ml glass vial, preserved with HCl, Chilled					TOTAL BOTTLES	NOTES
SR-1, water	4-25-90	1110	2	2					4	
										4 bottles for sewer samples
										20 bottles total in cooler (sent with ground-water samples)

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Donna Yeacy	ROUX	4-25-90	2000				

Delivery Method: Federal Express - Airbill # 5776057615

Comments: Sewer water samples

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9363N 5776057615

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Date: 4-25-90

1 From (Your Name) Please Print: Ms. Martha Smith
Your Phone Number (Very important): 516-673-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 775 PARK AVE STE 255
City: HUNTINGTON State: NY ZIP Required: 11743

2 To (Recipient's Name) Please Print: Mr. John Sherwelli
Recipient's Phone Number (Very important): 512 454-4797
Company: Radian Corporation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 8501 No-Pac Blvd.
City: Austin, Texas State: ZIP Required: 78757 78720-1088

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City: State: ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash
Expiration Date

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Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [ ] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ]
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS)
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (Extra charge)

PACKAGES	WEIGHT	YOUR DECLARED VALUE	OVER SIZE
1	31		
Total 1	Total 31	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] ____ lbs

Received At
1 [ ] Regular Stop 3 [ ] Drop Box
2 [ ] On Call Stop 4 [X] B.S.C. 5 [ ] Station
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Date/Time: 10/10/15

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Declared Value Charge
Other 1
Other 2
Total Charges

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ROUX

CHAIN OF CUSTODY

Consulting Ground-Water Geologists & Engineers
ROUX ASSOCIATES INC
775 PARK AVENUE
SUITE 255
HUNTINGTON, NEW YORK 11743

Project Name: ISRT - GSIP

Project Number: 06609Y

Project Location: Woburn, MA

Sampler(s): J. Yeager, E. Jorgeson

ANALYSES

Sample/Designation/Location	Date Collected	Time Collected	Total and Volatile forms of As, Hg, Pb; Organic Hg and Organic Sn in 500 ml amber glass bottle - Chilled	Fe II in 40 ml glass vial, Preserved with HCl; Chilled					TOTAL BOTTLES	NOTES
SR-4, water	4-26-90	0930	2	2					4	
SR-3, water	4-26-90	1100	2	2					4	
SR-100, water	4-26-90	1130	2	2					4	
										12 bottles total in cooler

Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Dianne Yeager	Roux	4-26-90	1600				
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time
Relinquished by:(Signature)	For	Date	Time	Received by:(Signature)	For	Date	Time

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9363N 5776057643

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Sender's Federal Express Account Number: 1068-9540-7
Date: 4-26-90

1 From (Your Name) Please Print: Ms. Martha Smith
Your Phone Number (Very Important): 516-473-7200
Company: ROUX ASSOCIATES
Department/Floor No.:
Street Address: 717 PARK AVE STE 255
City: HUNTINGTON
State: NY
ZIP Required: 11743

2 To (Recipient's Name) Please Print: Mr. John Sherwell
Recipient's Phone Number (Very Important): (512) 454-4797
Company: Radian Corporation
Department/Floor No.:
Street Address (No Street Deliver to P.O. Box or P.O. Zip Code 4): 8501 No-Mac Blvd.
City: Austin, Texas
State:
ZIP Required: 787[illegible]

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)
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Street Address:
City:
State:
ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash
Expiration Date

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [ ] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ] (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge) (CSB not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE _____ Lbs.
7 [ ] OTHER SPECIAL SERVICE _____
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT In Pounds Only	Value Declared (plus cpg)	Service Date
Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] _____ lbs.

Received At:
1 [ ] Regular Stop
2 [ ] On-Call Stop
3 [ ] Drop Box
4 [ ] BSC
5 [ ] Station

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In the event of untimely delivery, Federal Express will at your request and with some limitations, refund all transportation charges paid. See Service Guide for further information.

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Release Signature:
Date/Time

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

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