



Letter of Transmittal

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From: Rachel Hess
Date: 9/04/03
Project #: 02-125.03
Doc No: 02-125.03.0081
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- For Review & Comment Approved As Submitted Resubmit ____ Copies for Approval
 For Approval Approved As Noted Submit ____ Copies for Distribution
 For Information Return for Corrections Return ____ Corrected Prints
 Other:

No.	Copies	Date	Title
1	1	9/04/03	Amendment Sheet to Chemical Data Acquisition Plan (CDAP) for Parcel B Quarterly Groundwater Monitoring Program, Hunter's Point Naval Shipyard
2	1	9/4/03	Revised Field Sampling Activity Checklist
3	1	9/4/03	Revised Monitoring Well Purge and Sample Form
4	1	9/4/03	Revised Groundwater Level Measurement Log
5	1	8/13/03	ITSI Internal Field Audit of Parcel B 15 th Quarterly Groundwater Monitoring Event, Hunter's Point Naval Shipyard

Comments:

The attached Amendment Sheet to the Parcel B GW monitoring CDAP and ITSI internal Field Audit of the 15th Quarter of GW monitoring activities are provided to you for review and approval. The internal field audit was conducted in compliance with our SOW and the amendments to the CDAP are in response to the findings of our internal field audit. Overall findings of the internal field audit were good with minor discrepancies to compliance with the CDAP. The Amendment provides clarification and minor revision to the CDAP.

CC: G. Pat Brooks (06CHGP), BRAC Operations, SWDIV, 1230 Columbia St., Ste 1100, San Diego, CA, 92101
Peter Stroganoff ROICC SF Bay Area, Engineering Field Activity West, 2450 Saratoga St, Ste 200 Alameda, CA 94501
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Brett Womack, Rogerio Leong, Paul West, Jeff Hess & Project Files, ITSI

Diane Sylvia,

CHEMICAL DATA ACQUISITION PLAN FOR PARCEL B
QUARTERLY GROUNDWATER MONITORING PROGRAM

THIS DOCUMENT WAS NOT SUBMITTED TO THE
RESTORATION RECORD FILE.

FOR ADDITIONAL INFORMATION, CONTACT:

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This amendment to the Planning Documents for Parcel B Quarterly Groundwater Monitoring Program is to comply with the Innovative Technical Solutions Incorporated (ITSI) Quality Assurance (QA) Audit of "Documentation Practices" performed by ITSI on August 13, 2003. The QA audit was performed during the ongoing 15th Quarterly Groundwater Sampling at Parcel B, Hunters Point Shipyard in San Francisco. The following modifications, as presented below, are intended to streamline procedures previously established on the Planning Documents for Parcel B Quarterly Groundwater Monitoring Program deemed to be either inconsistent or irrelevant to field practices.

Chemical Data Acquisition Plan – Quarterly Groundwater Sampling at Parcel B, Hunters Point Shipyard, San Francisco, California

Section 4.0, fourth bullet point where it states: " Sorting and separation of appropriate amount of laboratory containers provided by the selected laboratory for each well. Table 2 will be used to cross check a monitoring well and the required suite of chemical analysis, along with any quality assurance or quality control samples" is deleted and replaced with "Request appropriate number of containers from laboratory based on Table 2.
Section 4.0, sixth bullet point: "de-ionized water" is replaced with "distilled water"
Section 4.0: add a seventh bullet point for "Calibration of Instruments and record results on the Field Instrument Calibration Record, (Attachment 3)."
Section 4.5, first paragraph, first statement: The words "prior and" are deleted.
Section 4.5, second paragraph, first statement: The words "before and" are deleted.
Section 4.5, second paragraph, last sentence where it reads: "Dedicated tubing will be used for the decontamination activity" is deleted.
Section 4.8, first paragraph, second statement: The word "container" is deleted.
Section 4.8, first paragraph, third statement: Southwest Laboratory is included in the statement to read " It is anticipated that the groundwater samples will be transported daily to Southwest Laboratory in Oklahoma, Oklahoma and Curtis & Tompkins Laboratory (C&T) in Berkeley, California by the ITSI Field Team Lead under chain-of-custody documentation."
Section 4.8, first paragraph, fourth statement where it reads: "...or shipped to the laboratory the sample containers will be sealed with custody tape" is changed to "...or shipped to the laboratory, the sample coolers will be sealed with custody tape."
Section 4.8, first paragraph, last statement: "duct tape" is changed to "clear tape"
Table 4, Groundwater Analytical Protocol, first row (Volatile Organic Compounds) and third column: " Two 40-mL VOC vials" is replaced with "Three 40-mL VOC vials".

Chemical Data Acquisition Plan – Quarterly Groundwater Sampling at Parcel B, Hunters Point Shipyard, San Francisco, California (continued)

Attachment 2 – Field Sampling Activity Checklist – the field checklist is subdivided in four sections to conform to the various phases of field work and minimize the amount of paperwork handled by the field crews. The updated checklist is presented as attached and should be handled in the following manner:

- Section I – Field Sampling Preparation: one form to be filled one time only prior to the actual field work schedule.
- Section II – Well Inspection, Water level, and Total Well Depth Measurement: one form only to be filled by each member performing well inspection, water and well depth measurements within 3-hour at low tide.
- Section III – (a)Monitoring Well Purging; (b)Monitoring Well Sampling; (c)Decontamination Procedures: these forms are to be filled for each well during the well sampling and purging phase.
- Section IV – Sample Handling, Shipment, and Chain-of-Custody: One form is to be filled daily for samples shipped to laboratories by the person handling sample packaging and shipping.

Attachment 3 – Field Forms: three additional columns are added to the Groundwater Level Measurements Log to record three consecutive measurements of well total depth.

Attachment 3 – Field Forms: Contractor Quality Control Report is removed form the document plan.

FIELD SAMPLING ACTIVITY CHECKLIST

Quarter No.: _____ Site Coordinator: _____ Date: _____

I - Field sampling preparation (1 week in advance)

Print and prepare:

- ___ Ground Water Level Measurement Form
- ___ Well Sample & Purge Form
- ___ Field Instrument Calibration Record
- ___ Tailgate Safety Meeting Form
- ___ Chain-of-Custody
- ___ Well Inspection Form
- ___ Pre-printed Sampling Labels
- ___ Appropriate number and types of laboratory containers for sampling

Rent and schedule field equipment:

- ___ Vehicle
- ___ PIDs
- ___ Grundfos Redi-Flo2 Pump Systems(controllers and pumps)
- ___ Generators (110V)
- ___ Flow through cells (YSI 6820, Horiba U-22, or equivalent)
- ___ Water level indicator probes
- ___ Down-the-hole DO probe meter (YSI55 or equivalent)
- ___ 4,900-gallon poly tank for storage of waste waster
- ___ Transfer Sump pump

Purchase miscellaneous material (as needed):

- ___ 55-gallon drums
- ___ Sampling materials (e.g. tubings, filters)
- ___ Source water from laboratory
- ___ Drinking and distilled water in 5-gallon jugs
- ___ Traffic cones or barricades
- ___ Tools to open wells
- ___ Nylon string
- ___ Nitrile gloves
- ___ 5-gallon buckets/brushes
- ___ Liquinox/Alconox soap
- ___ Ziplock bags
- ___ Paper towels
- ___ Trash bags
- ___ White trash bags to store dedicated tubing
- ___ Label Tags
- ___ Tape

FIELD SAMPLING ACTIVITY CHECKLIST

QuarterNo.: _____ Sampler: _____ Date: _____
Site Coordinator: _____ Date: _____

II – Well Inspection, Water Level and Total Well Depth Measurement

- ___ Review CDAP and Health and Safety Plan for Water Level Measurement for this quarterly event
- ___ Perform a calibration check on the PID (calibrate it if needed)
- ___ Measure groundwater level within 3-hour at low tide
- ___ Approach each well and assess organic vapors in the surrounding ambient (breathing zone), and top of well casing upon removing the well cap (record in Groundwater Level Measurement form)
- ___ Inspect and evaluate each assigned well for conditions and complete the Well Inspection form
- ___ Measure and record groundwater levels and well depths at three consecutive readings
- ___ Wipe the sounding cable withalconox or liquinox-impregnated paper towel and rinse with distilled water between wells at every water level and well depth measurement operation

FIELD SAMPLING ACTIVITY CHECKLIST

Well No.: _____ Sampler: _____ Date: _____
 Site Coordinator: _____ Date: _____

III(a) – Monitoring Well Purging

- ___ Review CDAP, TDP and HPS for Well Purging and Sampling procedures for this quarterly event
- ___ Perform and record calibration check on the PID and flow through cell meter (calibrate them if necessary)
- ___ Establish sampling preparation area by isolating work area with traffic cones.
- ___ Approach well and assess organic vapors with the PID in well surrounding (breathing zone) and top of well casing upon removing the well cap (record in Well Purge and Sample form)
- ___ Decontaminate water level indicator, submersible pump, and down-the-hole dissolved oxygen (DO) meter prior to purging and sampling the first well of the day and between wells thereafter.
- ___ Measure water level and total well depth to determine water column and volume of purge (record in Well Purge and Sample form).
- ___ Measure DO at top, middle and bottom of the water column (record in Well Purge and Sample form).
- ___ Purge three well casing volumes and record parameters of pH, conductivity, temperature, oxidation-reduction potential (ORP), DO, and turbidity at least twice at every removed well casing volume.
- ___ Are the DO and ORP readings correlating well? If the readings are not correlating (i.e. one reading is high and the other low) then check the instrumentation for possible measurement error.
- ___ Transfer and store purge water temporarily in 55-gallon drums.
- ___ Resume purging if parameters are stabilized within 10 percent between the last and previous measurements of the third removed well casing volume.
- ___ If well dries out, allow well to recharge at least 80 percent of its original level then take one more set of parameters before performing sampling.
- ___ If stabilization does not occur following the purging of three casing volumes, then continue purging until parameters fall within ten percent or until a maximum of four well casing volume have been purged.

FIELD SAMPLING ACTIVITY CHECKLIST (continued)

Well No.: _____ Sampler: _____ Date: _____
Site Coordinator: _____ Date: _____

III(b) - Monitoring Well Sampling

___ Check Table 2 (revised quarterly) and confirm the amount and types of containers needed, and any QA/ QC samples that may be required.

___ Disconnect discharge tubing from flow cell after purging well.

___ Collect groundwater samples directly from the discharge tubing into laboratory supplied containers in the following sequence:

- 1) Collect samples for analysis of CLP VOCs, CLP Low-Level VOCs and TPH-g. Ensure that no bubbles are present in vials collected. If chemical reaction occurs between the HCl preservative in the vial and the sampled groundwater, then collect in the unpreserved vials and record on the field and COC forms that reaction occurred.
- 2) Collect samples for analysis of SVOCs, TPH-e, PAH, and pesticides and PCBs. Fill amber bottles to the neck of the bottle.
- 3) Collect samples for analysis of hexavalent chromium.
- 4) Collect samples for analysis of dissolved metals. Attach a 0.45-micron filter on the discharging tubing to filter groundwater directly into a HNO₃ preserved poly bottle.

___ Assign a sample ID for the set of samples collected from each well in the following manner:

0309A200

where

- | | | |
|-----|---|---|
| 00 | = | Last digit of the year |
| 09 | = | Week of the year |
| A | = | Team Designation |
| 200 | = | Sequential sample ID number for sampler "R" |

___ Label each container when sample is collected, seal each sample in ziplock bags and store immediately in a cooler containing ice.

___ Record sample ID in the retained chain-of-custody form (second copy). Well location ID should NOT be entered in the original COC (first copy) that travels with cooler to laboratory.

___ Check total number of samples collected against total number calculated on table 2 (revised quarterly).

FIELD SAMPLING ACTIVITY CHECKLIST (continued)

Well No.: _____ Sampler: _____ Date: _____
Site Coordinator: _____ Date: _____

III(c) – Decontamination Procedures

___ After purging and sampling operation, disconnect discharge tubing from pump; store dedicated tubing in a new plastic bag and label the well ID on the bag with a sharpie pen.

___ Decontaminate submersible pump and attached electrical wires. Decontaminate pump by using a triple rinse system described as follows:

- 1) Submerge pump and re-circulate tap water with non-phosphate soap for 5 minutes in the first bucket
- 2) Submerge pump and re-circulate distilled water for 5 minutes in the second bucket
- 3) Submerge pump and re-circulate distilled water for 5 minutes in the third and final bucket.

___ Renew all decontamination water twice daily.

___ Collect equipment blanks at a frequency of every two days. Equipment blanks should be collected in laboratory containers by pumping source water with the decontaminated submersible pumps used for sampling .

___ Transfer all water stored in drums to the 4,900-gallon poly tank.

FIELD SAMPLING ACTIVITY CHECKLIST

Quarter No.: _____ Site Coordinator: _____ Date: _____

IV - Sample Handling, Shipment, and Chain-of-Custody

- ___ Review SOP in the FSP for Sampling Handling, Shipment and Documentation.
- ___ Use packing material, as needed, to fill cooler containing sampling bottles to prevent breaks during shipping to laboratory. Add sufficient ice in cooler to maintain temperature of approximately 4° C.
- ___ Place the chain-of-custody form inside a ziplock bag and tape it to the inside cooler lid.
- ___ Close cooler lid and strap with clear tape around both cooler ends.
- ___ If using a courier for shipping, then add two signed custody seals on the cooler (one on the front and one on the back).
- ___ Arrange for daily delivery of samples to primary and, if required, QA laboratory.
- ___ Notify laboratory which shipments have Hexavalent Chromium samples (these samples MUST be analyzed within 24 hours of collection).

MONITORING WELL PURGE AND SAMPLE FORM

PROJECT NAME: HPS Parcel B Quarterly Groundwater Monitoring PROJECT NO.: 02-125.03

WELL NO.: _____ TESTED BY: _____ DATE: _____

Organic Vapor Concentrations

Top of Casing: _____ ppm	Breathing Zone: _____ ppm
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Initial Dissolved Oxygen Readings

(Position in column of water)

Top: _____ mg/L	Middle: _____ mg/L	Bottom: _____ mg/L
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Well Purging

Disposable Bailer

Submersible Pump

Bladder Pump

Well Volume Calculation (fill in before purging)	Total Depth (ft)	-	Depth to Water (ft)	=	Water Column (ft)	x	Multiplier for Casing Diameter (in)			=	Casing Volume (gal)
							2	4	6		
							0.16	0.65	1.44		
Time											
Volume Purged (gals)											
Temperature (F°/C°)											
pH											
Specific Conductivity (mS/cm)											
Dissolved Oxygen (mg/L)											
Turbidity (NTU)											
ORP (mV)											
Flow Rate (gal/min)											
Dewatered?											

Well Sampling

Sample ID Number: _____

Sample Date/Time: _____

Sample Duplicate Number: _____

Sample Duplicate Date/Time: _____

Sample Collection Method: Disposable Bailer

Submersible Pump

Peristaltic Pump

Volume/Container	Analysis Requested	Preservatives	Laboratory
2 (1 L Amber)	TPH diesel	Cool, 4°C	SW Lab
2 Voas	TPH gasoline	HCL	SW Lab
3 Voas	VOCs	HCL	SW Lab
2 (1 L Amber)	SVOCs	Cool, 4°C	SW Lab
2 (1 L Amber)	Pesticides/PCBs	Cool, 4°C	SW Lab
1 (1 L Poly)	Metals (filtered)	HNO3	SW Lab
1 (1 L Poly)	Hexavalent Chromium	Cool, 4°C	C&T

PROJECT NAME: HPS, Parcel B - Groundwater Monit. - 15th Qtr. DATE: 8/13/03
PROJECT NUMBER: 02-125.03 **DAILY ACTIVITY REPORT** PAGE 1 OF 1
SITE LOCATION: Hunters Point, SF

DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

0815: Jim Schaller (JS), ITSE COCM onsite; find 2 sample teams onsite & meet w/ Brett Womack^(OW) Task Mgr., ITSE at ITSE field trailer; set-up paperwork & go over features w/ Brett; sign HOS review sheets & tailgate form.

0945: Begin observations & QA audit at well IR47MW037^{SA} with crew A (Rogerio Leong & Mother Wright). Rogerio Leong (RL) = crew lead. ^(attached) observe decontamination procedures & document QA results on Audit Report.

10:45: Move to well # IR07MW09A w/ crew A to observe well purging & sampling QA feature and IDW Handling & Storage QA feature and document QA audit results on Audit Reports (see attached).

1225: Complete well sampling efforts (Crew A) & demob. back to ITSE trailer and observe IDW tank & poly tank. Discs. w/ BW re. findings.

1235: Jeff Hess & Rachel Hess arrive onsite & met with them to discuss results of QA Audit and future revisions to COAP and Field Activity Checklists (Offsite @ 1300)

1300: Break for lunch (approx 15 min.)

1315: Observed BW conduct sample packaging, storage and shipment as part of QA feature and document QA audit results on Audit Report (see attached).

1415: Noted revisions to COAP & Field Checklists as indicated in Audit Reports; prepared notes.

1500: Observe HOS readiness, procedures request, at Crew B (J. Anderson & D. Hill) while awaiting well recovery. Documented results as QA feature on Audit Rpt (attached).

1545: Return to trailer to observe instrument calibrations by BW as part of QA audit & document results; availability of plans as QA audit feature and close-out all Audit Reports. Discussion with field crews re. some findings & improvements to quality and files. w/ P.M., Rachel Hess.

1800: BW offsite, JS remains to ^{review +} close-out Reports and tax documentation to Walnut Creek office (attn. R. Hess, P.M.)

1845: JS offsite.

PREPARED BY: Jim Schaller DATE: 8/13/03
PREPARER'S SIGNATURE: Jim Schaller



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Audit Report

Project Name: HPS, Parcel B - Groundwater Monit. - 15th QT.

Date of Audit: 8/13/03

Project No.: 02-125.03

Project Manager: R. Hess

Audit Team Members: Jim Schollad, ITSI

Brief Description of Project: Ongoing quarterly groundwater monitoring activities;
work feature: "Availability of approved field procedures (project plans)"

Audit Summary

Sampling crews (both) had the 4 project plans (CDAP, HSP, OMP, TDP) fully
available (assigned to ea. crew/vehicle) but did not have the SOPs from the dft. FSP
4 SOP (4/00) assigned to them (in vehicles) [Note - checklists include SOP initial reviewing

Corrective Action Required: Site Trailer had all documents available for review by staff.

- Distribute copies of the Draft FSP (4/00) to the each sampling crew until field
checklists are revised to reference the more current procedures in the CDAP (2/03).
Task Mgr. (BW) distributed Draft FSP (SOPs) to field crews. Corrective Action completed.

 Quality Improvement Opportunities:

Reinforce with Sampling crews the importance of reviewing the project
plans (specifically the CDAP) on a daily basis.

Remarks:

Auditor Signature: 

Date: 8/13/03



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Audit Report

Project Name: HPS, Parcel B - Groundwater Monit. - 15th QT. Date of Audit: 8/13/03

Project No.: 02-125.03 Project Manager: R. Hess

Audit Team Members: Jim Schollard, ITSI

Brief Description of Project: Ongoing quarterly groundwater monitoring activities;
 Work Feature: "Calibration and Operation of Equipment"

Audit Summary

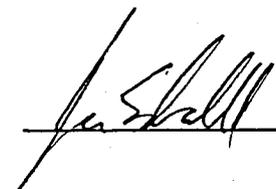
Observed Task Manager (TM) calibrate one of two Mini-tee PIDs and one of two Hiba V22 Water Quality Meters for tomorrow's sampling. Instrument Calibration Results + Calibration Record in order.

Corrective Action Required:

None

Quality Improvement Opportunities:

Suggest providing text in CDAP and Field Sampling Checklist specifying whether daily PID full calibration is required or just daily calibration checking against a known standard (with weekly full calib. performed), as is currently conducted. Note - FSP (4/00) Calib. requirements not specific on this issue.

Auditor Signature: 

Date: 8/13/03



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Audit Report

Project Name: HPS, Parcel B - Groundwater Monit. - 15th QT. Date of Audit: 8/13/03

Project No.: 02-125.03 Project Manager: R. Hess

Audit Team Members: Sim Schollard, ITSI

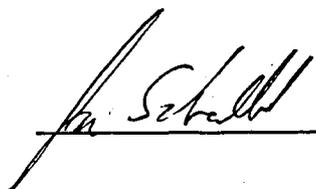
Brief Description of Project: Ongoing quarterly groundwater monitoring activities;
Work Feature: "Implementation of Approved Field Procedures - Well Purgings
and Sampling"

Audit Summary
Observed well Purgings and Sampling procedures at well # IRO7MU19A with
Crew A (RLoma).

Corrective Action Required:
None

Quality Improvement Opportunities:
Recommend revising the Field Sampling Checklists to reference more updated procedures in CDAP (2/03)
vs. SOPs in FSP (4/00) & make correction for metals samples (only) to be field-filtered or preserved w/
HNO₃ (correctly noted in CDAP).

Remarks:

 Auditor Signature:  Date: 8/13/03



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Audit Report

Project Name: HPS, Parcel B - Groundwater Monit. - 15th St. Date of Audit: 8/13/03

Project No.: 02-125.03 Project Manager: R. Hess

Audit Team Members: Jim Schalked, ITSI

Brief Description of Project: Ongoing quarterly groundwater monitoring activities;

Work Feature: "Implementation of Approved Field Procedures - Decontamination Procedures"

Audit Summary

Observed decon. procedures at well # IR47MV037A with Crew A (RLOmw)

- Corrective Action Required:
- Per Field Checklist guidelines, dedicated tubing needs to be stored in new plastic bag w/ attached label + NOT in re-used bag w/ ink-written label.
 - Per CDAP water level indicator needs to be decontaminated prior and after use at ea. well;

The pump was decontaminated in this manner because first well of day, however not typically performed both before and after use at each well (pursuant to CDAP).

Quality Improvement Opportunities:

Resolve whether there is a substantive need to decon. the pump both before and after operation in each well (15 mins. ea. time), per CDAP. May only be necessary at first well of new sampling day. Revise CDAP as appropriate or prepare amendment.

Remarks: Recommend revising Field Checklists to reference procedures in CDAP(2/03) vs. SOPs in FSP (4/00).

Auditor Signature: Jim Schalked Date: 8/13/03



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Audit Report

Project Name: HPS, Parcel B - Groundwater Monit. - 15th QT. Date of Audit: 8/13/03

Project No.: 02-125.03 Project Manager: R. Hess

Audit Team Members: Jim Schellert, ITSI

Brief Description of Project:
Ongoing quarterly groundwater monitoring activities, work
Feature: "Implementation of Approved Field Procedures - IDW Handling & Storage"

Audit Summary
Observed IDW Handling & Storage procedures at wells IR47MW03^B & IR07MW19A
w/ Crew A (RL + MW).

Corrective Action Required:
None

Quality Improvement Opportunities:
None

Remarks: Noted that 55-gal. drums and Poly Tank are labeled as "On-Hold Pending Analysis" vs. "Non-Hazardous"; suggest revising CDAP as appropriate.

Auditor Signature: *Jim Schellert* Date: 8/13/03



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Audit Report

Project Name: HPS, Parcel D, Groundwater Monit. - 15th QT. Date of Audit: 8/13/03

Project No.: 02-125.03 Project Manager: R. Hess

Audit Team Members: Jim Schollend, ITSI

Brief Description of Project: Ongoing quarterly groundwater monitoring activities;
Work Feature: "Chain-of-Custody procedures + Sample Packaging, Storage + Shipment"

Audit Summary Observed minor discrepancies between the procedures specified in the COAP vs the procedures actually performed. minor issues included not individually bagging ea. vOA container (grouped + bagged by analysis); not providing custody seals on ea. sample container that is to be shipped to a lab; using packaging tape rather than the specified Duct tape for cooler shipping; and using a new primary lab than what was specified in the COAP.

Corrective Action Required:
Recommend mtg. or teleconf. w/ Navy + ITSI project, technical + QA/QC staff to discuss + resolve these v. minor discrepancies and either prepare an amendment/revision to the COAP and Field Checklists in order to adopt these modifications, or return to the original procedures
 Quality Improvement Opportunities: and perform as indicated in the COAP.

Once discrepancies are resolved, communicate the results to the field crews and provide in writing for future reference.

Remarks: Noted that original C.O.C.s are placed in the cooler containing the samples for VOC analysis. Suggest placing copies of the COC(s) in each cooler in the event that one cooler becomes separated from the others.

Auditor Signature: Jim Schollend Date: 8/13/03



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Audit Report

Project Name: HPS, Parcel B - Groundwater Monit. - 15 MAR. Date of Audit: 8/13/03

Project No.: 02-125.03 Project Manager: R. Hess

Audit Team Members: Jim Schollard, ITSI

Brief Description of Project: Ongoing quarterly groundwater monitoring activities;

Work Feature: "Health and Safety Procedures" - general field check only -

Audit Summary

Observed field crew D (SA & DH) at well # IR26MU46A (while awaiting
80% recovery) to check health and safety readiness and procedures.

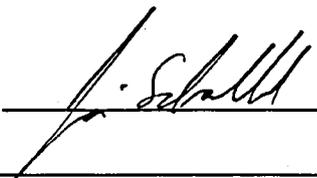
Corrective Action Required:

None

Quality Improvement Opportunities:

A more comprehensive H+S audit will be performed by ITSI program-
level H+S staff in the near future.

Remarks:

Auditor Signature: 

Date: 8/13/03



**Innovative
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Audit Report

Project Name: HPS, Parcel B, Groundwater Monit. - 15th QT. Date of Audit: 8/13/03

Project No.: 02-125.03 Project Manager: R. Hess

Audit Team Members: Jim Schaller

Brief Description of Project: Ongoing quarterly groundwater monitoring activities;
 Work Feature: "Documentation of Procedures and Instructions"

Audit Summary

observed documentation procedures by Crew A (RL only) at well # IRO7MW19A
and other documentation associated with the work ^{9^s} features as part of this QA audit.

Corrective Action Required:

None

Quality Improvement Opportunities:

Recommend revising the Field Sampling Checklists to reference the more updated procedures
in CDAP (4/03) vs. SOPs in ^{Prot} FSP (4/00), as well as resolve the minor discrepancies between
free guidance documents as noted in the accompanying Audit Reports.

Remarks:

• Suggest removing or providing explanatory text in revised/amendment to C.D.A.P
stating that this groundwater monitoring work activity will not be documented
using the "Contract Quality Control Reports" that are included in the CDAP, as *

Auditor Signature: Jim Schaller Date: 8/13/03

* discussed w/ Navy + ITR project staff. "Field Activity Daily Reports" are used for this documentation.



MONITORING WELL PURGE AND SAMPLE FORM

PROJECT NAME: HUNTERS POINT SUBPYARD PROJECT NO.: 02-125.03
 WELL NO.: IRZ6NW41A TESTED BY: RLEONG & WRIGHT DATE: 08/13/2003

Organic Vapor Concentrations

Top of Casing: 2.3 ppm Breathing Zone: 0.1 ppm

Initial Dissolved Oxygen Readings (Position in column of water)

Top: 0.33 mg/L Middle: 0.37 mg/L Bottom: 0.5 mg/L

Well Volume Calculation (fill in before purging)	Total Depth (ft)	Depth to Water (ft)	Water Column (ft)	Multiplier for Casing Diameter (in)			Casing Volume (gal)
				2	4	6	
	<u>20.69</u>	<u>7.19</u>	<u>13.50</u>	<u>0.16</u>	<u>0.65</u>	<u>1.44</u>	<u>8.77</u>
Time	<u>13:55</u>	<u>14:02</u>	<u>14:11</u>	<u>14:20</u>	<u>14:29</u>	<u>14:38</u>	<u>14:47</u>
Volume Purged (gals)	<u>1.0</u>	<u>4.5</u>	<u>9.0</u>	<u>13.5</u>	<u>18</u>	<u>22.5</u>	<u>27</u>
Temperature (F°)	<u>19.30</u>	<u>20.09</u>	<u>21.12</u>	<u>21.20</u>	<u>21.04</u>	<u>21.20</u>	<u>21.35</u>
pH	<u>6.87</u>	<u>7.32</u>	<u>7.40</u>	<u>7.41</u>	<u>7.43</u>	<u>7.46</u>	<u>7.44</u>
Specific Conductivity (mS/cm)	<u>8.46</u>	<u>3.17</u>	<u>1.81</u>	<u>1.78</u>	<u>1.87</u>	<u>1.79</u>	<u>1.83</u>
Dissolved Oxygen (mg/L)	<u>19.47</u>	<u>6.65</u>	<u>4.57</u>	<u>3.82</u>	<u>3.28</u>	<u>3.06</u>	<u>3.19</u>
Turbidity (NTU)	<u>31.5</u>	<u>16.8</u>	<u>21.9</u>	<u>22.3</u>	<u>27.4</u>	<u>28.7</u>	<u>29.5</u>
ORP (mV)	<u>-112</u>	<u>-167</u>	<u>-209</u>	<u>-209</u>	<u>-203</u>	<u>-200</u>	<u>-181</u>
Flow Rate gal/min	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>
Dewatered?	<u>NO</u>	<u>NO</u>	<u>NO</u>	<u>NO</u>	<u>NO</u>	<u>NO</u>	<u>NO</u>

181 mV NOT quite clean
10% of 200 = 19.1 mV
Probably should have purged 47 volume to be safe

Well Sampling

Sample ID Number: 0333A060 Sample Date/Time: 08/13/03 @ 1500
 Sample Duplicate Number: NONE Sample Duplicate Date/Time: NONE
 Sample Collection Method: Disposable Bailor Submersible Pump Peristaltic Pump

Volume/Container	Analysis Requested	Preservatives	Laboratory
<u>2 (1 L Amber)</u>	<u>TPH diesel</u>	<u>Cool, 4°C</u>	<u>Southwest Lab</u>
<u>2 Vials</u>	<u>TPH gasoline</u>	<u>HCL</u>	<u>Southwest Lab</u>
<u>3 Vials</u>	<u>VOCs</u>	<u>HCL</u>	<u>Southwest Lab</u>
<u>2 (1 L Amber)</u>	<u>SVOCs</u>	<u>Cool, 4°C</u>	<u>Southwest Lab</u>
<u>2 (1 L Amber)</u>	<u>Pesticides/PCBs</u>	<u>Cool, 4°C</u>	<u>Southwest Lab</u>
<u>1 (1 L Poly)</u>	<u>Metals</u>	<u>HNO3</u>	<u>Southwest Lab</u>
<u>1-(500 ml Poly)</u>	<u>Hexavalent Chromium</u>	<u>Cool, 4°C</u>	<u>C&T</u>

* PEAK READINGS

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MONITORING WELL PURGE AND SAMPLE FORM

PROJECT NAME: HUNTERS POINT SHIPYARD PROJECT NO.: 02.125.03
 WELL NO.: IT07MW19A TESTED BY: RLEONG, YWEIGHT DATE: 08/13/2003

Organic Vapor Concentrations

Top of Casing: 0.1 ppm Breathing Zone: 0.1 ppm

Initial Dissolved Oxygen Readings
(Position in column of water)

Top: 3.54 mg/L Middle: 3.26 mg/L Bottom: 0.11 mg/L

Well Purging

Well Volume Calculation (fill in before purging)	Total Depth (ft)	Depth to Water (ft)	Water Column (ft)	Multiplier for Casing Diameter (in)			Casing Volume (gal)	
				2	4	6		
	15.75	9.41	6.34	0.16	0.65	1.44	4.12	
Time	11:04	11:13	11:16	11:25	11:26	11:30	11:34	11:42
Volume Purged (gals)	INITIAL	2.0	4.0	7.0	8.5	10.5	12.5	16.50
Temperature (°C)	20.10	20.42	20.57	20.35	20.47	20.59	20.54	20.59
pH	7.53	7.30	7.28	7.28	7.30	7.32	7.30	7.31
Specific Conductivity (mS/cm)	40.2	39.1	38.7	38.2	38.2	38.2	38.3	38.7
Dissolved Oxygen (mg/L)	14.77	9.15	7.94	6.14	6.07	6.00	5.95	5.72
Turbidity (NTU)	47.7	14.4	11.2	26.6	22.8	19.6	14.0	9.8
ORP (mV)	164	146	140	135	134	126	125	127
Flow Rate gal/min	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dewatered?	No	No	No	No	No	No	No	No

Well Sampling

Sample ID Number: 0333A/5A Sample Date/Time: 06/13/03 @ 1155
 Sample Duplicate Number: None Sample Duplicate Date/Time: None
 Sample Collection Method: Disposable Baller Submersible Pump Peristaltic Pump

Volume/Container	Analysis Requested	Preservatives	Laboratory
2 (1 L Amber)	TPH diesel	Cool, 4°C	Southwest Lab
2 Vials	TPH gasoline	HCL	Southwest Lab
3 Vials	VOCs	HCL	Southwest Lab
2 (1 L Amber)	SVOCs	Cool, 4°C	Southwest Lab
2 (1 L Amber)	Pesticides/PCBs	Cool, 4°C	Southwest Lab
1 (1 L Poly)	Metals	HNO3	Southwest Lab
1 (500 mL Poly)	Hexavalent Chromium	Cool, 4°C	C&T



MONITORING WELL PURGE AND SAMPLE FORM

PROJECT NAME: HUNTERS POINT SHIPYARD PROJECT NO.: 02-125.03
 WELL NO.: IR46 MW37A TESTED BY: KEENE & M. Wright DATE: 06/13/2003

Organic Vapor Concentrations
 Top of Casing: 0.1 ppm Breathing Zone: 0.1 ppm

Initial Dissolved Oxygen Readings
 (Position in column of water)
 Top: 1.25 mg/L Middle: 0.27 mg/L Bottom: 0.26 mg/L

Well Volume Calculation (fill in before purging)	Total Depth (ft)	Depth to Water (ft)	Water Column (ft)	Multiplier for Casing Diameter (in)			Casing Volume (gal)		
				2	4	6			
	20.86	7.31	13.55	0.16	0.65	1.44	8.81		
Time	8:40	8:44	8:53	9:02	9:11	9:20	9:29	9:38	9:47
Volume Purged (gals)	2.5	4.5	9.0	13.5	18	22.5	27	31.5	36
Temperature (F°)	19.94	19.87	19.79	19.23	19.38	19.47	19.48	19.56	19.48
pH	8.71	8.76	8.77	8.63	8.64	8.65	8.70	8.68	8.68
Specific Conductivity (mS/cm)	2.44	2.68	2.59	2.91	2.72	2.63	2.60	2.60	2.54
Dissolved Oxygen (mg/L)	8.52	6.66	5.09	6.40	3.66	3.07	2.51	2.41	2.39
Turbidity (NTU)	8.5	8.8	10.4	4.5	2.2	2.8	2.5	19.9	0.6
ORP (mV)	87	27	-24	-37	-61	-84	-75	-81	-84
Flow Rate Gal/min	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dewatered?	No	No	No	No	No	No	No	No	No

Well Sampling
 Sample ID Number: 0333A057 Sample Date/Time: 08/13/03 @ 1000
 Sample Duplicate Number: 0333A058 Sample Duplicate Date/Time: 08/13/03 @ 1010
 Sample Collection Method: Disposable Bailer Submersible Pump Peristaltic Pump

Volume/Container	Analysis Requested	Preservatives	Laboratory
4 oz (1 L Amber)	TPH diesel	Cool, 4°C	Southwest Lab ✓
4 oz Vials	TPH gasoline	HCL	Southwest Lab ✓
6 oz Vials	VOCs	HCL	Southwest Lab ✓
6 oz (1 L Amber)	SVOCs	Cool, 4°C	Southwest Lab ✓
6 oz (1 L Amber)	Pesticides/PCBs	Cool, 4°C	Southwest Lab ✓
2 oz (1 L Poly)	Metals	HNO3	Southwest Lab ✓
2 oz (500 mL Poly)	Hexavalent Chromium	Cool, 4°C	C&T ✓

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2730 Shadelands Drive, Suite 100
 Walnut Creek, CA 94598
 Phone: 925-946-3100
 Fax: 925-256-8998
 Email: www.itsi.com

Chain of Custody Record No. 0303

AUG 14 2003 7:48

HP LASERJET 3330

Lab FOR: 0212503251		Lab: SOUTHWEST LAB.			No./Container Types		Preservative Added																	
Project name: HUNTERS POINT SHIPYARD		ITSI technical contact: BRETT WOUACK		Field samples: ROGERIO LEONG UNIDENTIFIED WEIGHT			Analysis Required																	
Project number: 02-125-03		ITSI project manager: RACHEL HES		Field manager's signature: 																				
Sample ID	Sample Location	Date	Time	Matrix	MIS / MIRD	40 ml VOA	1 liter Amber	300ml Poly w/ 1 liter	Bottle	Glass Jar	120 ml Poly	Sealant	VOCs	BVOCs	PAHs	Perk	Dioxins	TEPH	TEPH	Metals Filtered	GMs	PCBs	Other	
0333A056	TRIP BLANK	08/13/03	630	H2O									X	X										X
0333A057	TR46 MW37A	08/13/03	1000	H2O		2							X					X	X	X				
0333A058	TR46 MW37A (DUP)	08/13/03	1010	H2O		2	1						X					X	X	X				
0333A059	TR07 MW19A	08/13/03	1155	H2O		2	1						X					X	X	X				
0333A060	TR26 MW41A	08/13/03	1500	H2O		2	1						X					X	X	X				
0333A061	EQ. BLANK	08/13/03	1545	H2O		2							X					X	X	X				

08/13/2003

Requested by:	Name (print)	Company Name	Date	Time
	ROGERIO LEONG	TANV. TECH. SOL. INC.	08/13/2003	1500
Received by:				
Requested by:				
Received by:				
Requested by:				
Received by:				

Remarks/Instructions:
 STANDARD TURN AROUND TIME / RUN STANDARD VOC ANALYSIS ON ~~TRIP~~ ^{RL} ~~BLANK~~ SAMPLE 0333A056

08/14/2003 11:17 PAA

08/14/2003 11:17 PAA

1050

J. Schollard's review
+ mark-ups as part
of the QA Audit of
"Documentation Practices,"

FIELD SAMPLING ACTIVITY CHECKLIST

Well No.: _____

Sampler: _____

Date: HPS, 8/13/03.

Site Coordinator: _____

Date: _____

Field sampling preparation (1 week in advance)

Print and prepare:

- Daily Activity Form
- ^{from} Water Level Measurement Form ^{Field Instrument Calibration Record}
- Well Sample & Purge Form
- Equipment Calibration Log ←
- Tailgate Safety Meeting Form
- Chain-of-Custody
- Well Inspection Form
- Sampling Labels
- ^{uh? print labels for?} Sets of laboratory containers (including QA/QC) for each well - ?
- ^{Corrective Action Request Form (?)}

Change as growth

appropriate # containers for sampling received?

Rent and schedule field equipment:

- Vehicle 5
- Cell phone 5
- PID OVms
- Grundfos Redi-Flo2 ^{pump systems} (controllers and pumps)
- Generator (110V)
- Flow through cells (SI 6820, Horba U2000, or equivalent)
- Water level indicator probes
- YSI55 down-the-hole DO probe meter (YSI55 or equivalent)
- 4,900-gallon poly tank for storage of waste water (for 13th qtr only)
- Transfer trash ~~or~~ sump pump

Purchase miscellaneous material:

- 55-gallon drums
- Sampling materials (e.g. tubings, filters)
- Source water from laboratory
- Drinking and distilled water in 5-gallon jugs
- Traffic cones or barricades
- Tools to open wells
- Nylon strings
- Nitrile gloves
- 5-gallon buckets/brushes
- Liquinox/Alconox soap
- Ziplock bags
- Paper towels
- Trash bags
- White trash bags to store dedicated tubings
- Label Tags
- Tape

FIELD SAMPLING ACTIVITY CHECKLIST (continued)

Well No.: _____ Sampler: _____ Date: _____
Site Coordinator: _____ Date: _____

Well Inspection, Water Level and Total Well Depth Measurement

- ___ Review ^{C.D.A.P., T+D Plan,} ~~Work Plan~~ and Health and Safety Plan (sign Tailgate Safety Form)
- ___ Review ^{The CDAP} ~~SOP in the FSP~~ for Water Level Measurement ^{procedure}
- ___ Calibrate PID ⁽⁵⁾ and ~~decontaminate~~ water level indicator
- ___ Measure groundwater level within 3-hour at low tide
- ___ Approach well and assess organic vapors in the surrounding ambient ^{breathing} zone), and top of well casing upon removing the well cap (record in ^{Water Level} Measurement form)
- ___ Inspect and evaluate well condition by completing the Well Inspection form
- ___ Measure and record groundwater level ^{and well depth(?)} at three consecutive readings
- ___ Wipe the sounding cable with alconox or liquinox-impregnated paper towel and rinse with ~~deionized~~ water between wells at ~~every water level measurement~~ operation ^{- CDAP spicities distilled}

Daily ↑

Each well ↓

FIELD SAMPLING ACTIVITY CHECKLIST (continued)

Well No.: _____ Sampler: _____ Date: _____
Site Coordinator: _____ Date: _____

Monitoring Well Purging

CDAP, T+D Plan and
___ Review ~~Work Plan~~ and Health and Safety Plan (sign Tailgate Safety Form).

CDAP
___ Review SOP in the FSP for Well Purging and Sampling *procedures*

(5) and flow cells
___ Calibrate PID and decontaminate water level indicator, submersible pump, and down-the-hole dissolved oxygen (DO) meter.

___ Approach well and assess organic vapors with PID in well surrounding (breathing zone) and top of well casing upon removing the well cap (record in Well Purge and Sample form).

___ Establish sampling preparation area by isolating work area with traffic cones.

___ Measure water level and total well depth to determine water column and volume of purge (record in Well Purge and Sample form).

___ Measure DO at top, middle and bottom of the water column (record in Well Purge and Sample form).

(maximum four)
___ Purge three well casing volumes and record parameters of pH, conductivity, temperature, oxidation-reduction potential (ORP), DO, and turbidity at least twice at every removed well casing volume.

___ Are the DO and ORP readings correlating well? If the readings are not correlating (i.e. one reading is high and the other low) then check the instrumentation for possible error in measurement.

___ Transfer and store purge water temporarily in 55-gallon drums.

___ Resume purging if parameters are stabilized within 10 percent between the last and previous measurements of the third removed well casing volume.

___ If well dries out, allow well to recharge at least 80 percent of its original level then take one more set of parameters before *or collect into sample?* performing sampling.

following the purging of three casing volumes
___ If stabilization does not occur ~~within the three casing volume of purge~~, then continue purging until parameters fall within ten percent, or until removing a maximum of four well casing volumes *have been purged.*

Daily ↑

Each well ↓

or collect, purge up to four ...

FIELD SAMPLING ACTIVITY CHECKLIST (continued)

Well No.: _____

Sampler: _____

Date: _____

Site Coordinator: _____

Date: _____

Monitoring Well Sampling

___ Check, and confirm ^{the} amount and types of containers needed, and any QA/QC ^{Table 2 (revised quarterly)} samples that may be required as well, on the attached table of well ID versus chemical analysis.

___ Disconnect discharge tubing from flow through cell after purging well.

___ Collect groundwater samples directly from the discharging ^e tubing into laboratory supplied containers in the following sequence:

- 1) Collect samples for analysis of CLP VOCs, CLP Low-Level VOCs and TPH-g. Ensure that no bubbles are present in vials collected. If chemical reaction occurs between HCl preservative in vial and sampled groundwater, then collect in unpreserved vials and record on the field and COC forms that reaction occurred.
- 2) Collect samples for analysis of SVOCs, TPH-e, PAH, and pesticides and PCBs. Fill amber bottles to the neck of the bottle.
- 3) Collect samples for analysis of dissolved metals and hexavalent chromium. Attach a 0.45-micron filter on the discharging tubing to filter and transfer groundwater directly into a HNO3 preserved poly bottle.
- 4) ~~Collect samples for analysis of dissolved metals and hexavalent chromium.~~ ^{Collect samples for analysis of dissolved metals.}

___ Check total number of ^{samples} containers collected against total number calculated on the attached table of well ID versus chemical analysis. ^{Table 2 (revised quarterly)}

___ Arrange for daily ^{shipment or} delivery of samples to primary and, if required, QA laboratory.

___ Notify laboratory which shipments have Hexavalent Chromium samples (these samples MUST be analyzed within 24 hours of collection).

~~Place sample in barrel on the chain of custody (COC), complete a separate COC, as required, for the QA sample(s).~~

Probably makes more sense to move this to "Sample Handling, Shipment & COC" Field Checklist

Note - list containers referenced in Table 4

only dissolved metals are field-filtered

FIELD SAMPLING ACTIVITY CHECKLIST (continued)

Well No.: _____ Sampler: _____ Date: _____
Site Coordinator: _____ Date: _____

Decontamination Procedures

CDAP + T+D Plan
___ Review SOP in the FSP for Decontamination Procedures.

Not sure what you would like to say. The crews reuse the bags & label w/ Sharpie pen

___ After purging and sampling operation, disconnect discharge tubing from pump; store dedicated tubing in a new plastic bag and attach label tag with well ID location.

___ Decontaminate submersible pump and attached electrical wires. Decontaminate pump by using a triple rinse system described as follows:

- 1) Submerge pump and re-circulate tap water with non-phosphate soap ^{for} during 5 minutes in the first bucket
- 2) Submerge pump and re-circulate distilled water ^{for} during 5 minutes in the second bucket
- 3) Submerge pump and re-circulate distilled water ^{for} during 5 minutes in the third and final bucket.

___ Renew all decontamination water twice daily.

___ Transfer and store all used decontaminated water temporarily in 55-gallon drums.

___ Collect equipment blanks at a frequency of every two days. Equipment blanks should be collected in laboratory containers by pouring source water directly ^{into} ~~in a~~ the decontaminated submersible pump.

___ Transfer all water stored in drums to the 4,900-gallon poly tank. *[Note - T + D Plan (sect. 4.0 P.5) states that IDW generated from wells w/ a history of containing high levels of contaminants will be segregated & temporarily stored in drums onsite. May want to address/include here.]*

FIELD SAMPLING ACTIVITY CHECKLIST (continued)

Well No.: _____ Sampler: _____ Date: _____
Site Coordinator: _____ Date: _____

Sample Handling, Shipment, and Chain-of-Custody

- ___ Review SOP ^{CDAP} in the FSP for Sampling Handling, Shipment and Documentation.
- ^{Insert addtl. items from MWR Sampling Checklist} Assign a sample ID for the set of samples collected from each well in the following manner:

^
0309R200

where

00	=	Last digit of the year
09	=	Week of the year
RA	=	Sampler's initial ^{Team designation}
200	=	Sequential sample ID number for sampler "R"

- ___ Label each container when sample is collected, seal each sample container in ^{one} ziploc bag ^(s) and store immediately in a cooler containing ice.
- ___ Record sample ID in the retained chain-of-custody form (second copy). Well location ID should NOT be entered in the original COC (first copy) that travels with cooler to laboratory.
- ___ Use packing material ^{as needed,} to fill cooler containing sampling bottles to prevent breaks during shipping to laboratory. Add sufficient ice in cooler to maintain a temperature of approximately 4° C.
- ___ Place chain-of-custody form inside a ziploc bag and tape to the inside cooler lid. *
- ___ Close cooler lid and strap tape around both cooler ends.
- ___ If using a courier for shipping, then add two signed custody seals on the cooler (one on the front and one on the back).

* May want to explain that when sending a multiple cooler shipment, the original COCs are placed with the volatile samples in the primary cooler and copies of the COCs should be placed with the other (non-volatile) sample coolers. [This way each cooler has the C.O.C.s.]

⇒ Note - During the Audit, copies of the COCs were not being included w/ the non-volatile sample coolers.