



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

November 19, 1998

DW-8J

Mr. Thomas Brent
Environmental Protection Department
Code 095
Naval Surface Warfare Center
300 Highway 361
Crane, Indiana 47522

RE: Notice of Deficiency
Field Sampling Plan
ABG, Demo, ORR, OJT
Naval Surface Warfare Center
Crane, Indiana

Dear Mr. Brent:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the "Field Sampling Plan for Ground Water Monitoring at the Ammunition Burning Ground (ABG), Old Rifle Range (ORR), Demolition Range (Demo), and Old Jeep Trail," dated May 1998. Our comments on the plan are attached. These comments do not include the review by our Quality Assurance Plan Coordinator, he is currently concentrating on the review of the Quality Assurance Plan.

Our primary concern with the plan is to make sure the sequencing of the field activities coordinates with the activities that will actually occur in the field. The Standard Operating Procedures (SOPs) and various record keeping forms must be specific to the needs of this project, and not generic laboratory or contractor forms. It is in the best interest of the Navy, since this ground water program will occur for a minimum of 7 years (the life of the first U.S. EPA permit issuance) and potentially to 30 or more years (depending on the life of the unit and closure), to have a plan that suits your site specific needs. Our comments reflect areas that need to be modified to become site specific. As we've stated in the past, the Field Sampling Plan needs to be the "cookbook" for the field samplers. A minimum of cross-referencing should be encouraged between text and SOPs, so there are less chances of sampling errors.

We would also like to agree with the State of Indiana's comments on the plan. Modifications must be made addressing those comments and the attached comments, with a response to comments document.

In order to keep on the intended approval of the ground water plans by December 30th, we would encourage the possibility of meeting in early-mid December to go through the text in person and get the changes finalized between the reviewing parties (as we did on the Bioremediation Facility). Otherwise, a revision would need to be submitted possibly sooner. Please let us know by November 23rd what arrangements the Navy would like to meet (hardcopy back and forth or meetings). If you have any questions regarding this matter, please contact me at (312) 886-6146.

Sincerely,



Carol Witt-Smith
Corrective Action Expert
WMB, IL/IN/MI Section

Enclosure

Filename: NODFSP.USN

cc: Core Team Members: Bill Gates, SOUTHDIV
Christine Freeman, NSW
Phil Keith, NSW
Doug Johnson, CAAA
Jodi Lloveras, SOUTHDIV
Michelle Timmerman, IDEM

Project Team Members: Allen Debus, U.S.EPA
Ralph Basinski, Tetrattech
James May, ACOE-WES
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Management Team Members: Tom Linson, IDEM
Hak Cho, U.S. EPA
Jim Hunsicker, NSW
Jim Ferro, SOUTHDIV

Notice of Deficiency
Field Sampling Plan for Ground Water Monitoring
ABG, ORR, Demo, and OJT
Dated May 1998

1. **Changes to the cover signature page:**

- a. **Allan should be Allen.**
- b. **Add Cheryl's name from IDEM.**
- c. **Change Paul's name to Phil and Tom.**
- d. **Add Jodi's name from SOUTHDIV.**

2. **Page 1-1, Second Paragraph, end of 3rd sentence.**

Add “, for the OJT.”

3. **Figure 1-1**

Add a box for IDEM. Change the names of the NSWG reps. The Laucks project manager needs to be identified.

4. **Table 1-1**

Carol Smith Witt needs to be changed to Carol Witt-Smith. Add IDEM to the table, Change the NSWG contacts and phone numbers. Add the Laucks contact.

5. **Page 1-6**

- a. **At the top of the page add IDEM.**
- b. **Under Navy Project Managers, change Paul to Phil and Tom.**
- c. **Add “and IDEM” after U.S. EPA, in sentence 1 under Task Order Manager.**

6. **Page 1-7 and Page 1-8**

For consistency in format and readability, at spaces between the lines under Health and Safety Manager and at the top of page 1-8.

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Page 2

7. Page 1-9

Add the Laucks contact. This needs to be decided on.

8. Page 2-1, Paragraph 2, Sentence 3

Change "closure" to "corrective action."

9. Figures of the individual units need to be consistent in the three plans. Please make sure of this. Shouldn't ORR also be identified on Figures 2-5 and 2-6.

10. Page 2-13, Section 2.6

Add references to Noel's karst investigations and the WES dye tracer reports.

11. Change all references to the Ground Water Monitoring Plan to the approved version instead of the draft one.

12. Page 3-1

a. At the end a sentence 1, in section 3.1, add ",interim status and closure requirements for the waste pile and surface impoundments at ABG."

b. In the last sentence of Section 3.1, add "or installed" after "selected."

c. Add "Monitoring" before "Plan", in sentence 2, in Section 3.2.

13. Page 3-11, Section 3.3

Change this whole section to after the fact. Include the actual datum information as an appendix reserved for when the data comes in.

14. Page 4-1, Section 4.1.1

Spell out ORP/Eh, it is the first time it is used.

15. Table 4-1

The Beaver Bend well is misidentified. Why is the information for Well 03B04 unavailable. Find it and add it.

16. Table 4-3

Add in the footnotes the following:

- (6) Explosives Subset A, unless NA demonstration shows that explosives from Subset B are present and need to be monitored further.

17. Page 4-5, Section 4.1.1.1

This section needs revision, or reference the GWMP instead.

- a. Which three wells are being sampled. More than those three wells are being used to monitor the plume
- b. Which "facility boundary" are you discussing? The unit or the property?
- c. Explain the tracer tests, explain why we are watching Johnson Hollow.
- d. Sentence 3, add "wells" after "upgradient". Add that "Springs are being sampled in place of wells on a quarterly basis.
- e. Sentence 3, add at the end, "and quarterly for constituents of concern identified to exist in the plume. Table 4-3 identifies parameters to be monitored quarterly."
- f. Sentence 2, change "resulting in the need for corrective action." Corrective Action is needed if the plume is beyond the unit boundary. The Navy has already triggered this.
- g. Reword the last sentence, since the analytical data needs to be validated to show a demonstration is even possible.

18. Page 4-5, Section 4.1.1.3

Change the first sentence. The entire ABG is NOT underlain by karst.

19. Page 4-7, Section 4.1.2

- a. Add: "o Compliance and corrective action monitoring of existing plume"

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Page 4

- b. **Second from last sentence in first paragraph: Annual Appendix IX needs to check for Subset B explosives to show degradation products are not there.**
 - c. **Last sentence in the first paragraph: same comment as for ABG about the first annual sampling deletion.**
- 20. **The FSP needs to address in Table 4-5 and other sections the compliance wells present or to be installed to delineate the edge of the plume existing at ORR.**
- 21. **Page 4-14, Section 4.2.1**
Add to the bullets: "Condition of the well pad or gravel.
- 22. **Page 4-15, Section 4.2.3**
At the end of the first paragraph add a period.
- 23. **Page 4-16, Section 4.2.4**
Change the paragraph to be past tense since this will be done prior to permit issuance. So, delete "It is anticipated that." Capitalize "Dedicated", change "will be" to "was" or "were."
- 24. **Page 4-17, top of page.**
At the end add: ", and no later than 24 hours."
- 25. **Table 4-10**
The holding times for nitrocellulose need to be modified to match the approved QAPP once the method is settled.
- 26. **Throughout Section 4, it is more advisable for the Navy to make this more "cook book" that one field person could be replaced by another and still perform to the same level of quality. Mistakes or issues in Section 4 repeat themselves in the SOP appendix. Section 4 may concentrate on where to perform the activities and give the flow of the sampling activity and refer to the specific SOPs and record keeping. There is too much duplication of errors in the review.**

NOD Field Sampling Plan
Page 5

27. Page 4-22, Section 4.2.7, paragraph 2

Add "first" at the end of sentence 2. And add "taking care to avoid solid contamination" at the end of the last sentence.

28. Page 4-22 and 4-23, Section 4.2.8

- a. This section should clearly define what equipment is dedicated or not.
- b. The use of nitric acid and pesticide grade isopropanol may not be needed for ground water samples and surface water samples. We suggest looking at the same levels of cleaning approved in the compost facility QAPP. Potable, liquinox, deionized water, and reagent grade water rinses. If there is equipment that needs even stronger cleaning steam cleaning is preferred versus the potential hazards of bringing in chemicals that could effect the sampling. If nitric acid is used in the field, a reagent blank is required also.
- c. Delete the sentence related to hexane use. This is not going to be done.
- d. Change the SOP CTO38-5 to reflect these comments.

29. Page 4-23, Section 4.2.9

- a. State that: "Trash at NSWC is disposed in the on-site solid waste permitted landfill." Also, don't imply it will be tossed out potentially anywhere on the site.
- b. Add how the containers will be labeled, stored, transported, and managed.

30. Page 4-24

- a. Define "any other pertinent information." If it is pertinent then it should be identified.
- b. Explain how the sample labeling will occur if there is a resampling event during the compliance period.

31. Page 4-27, Sample Shipment Procedures

- a. Delete all reference to the use of blue ice.
- b. Capitalize "state" in the second bullet.

- c. Bullet 4 should come before bullet 3.
- d. In bullet 3, add: "(example shown in SOP CTO038-4, in Appendix C)" after custody seals.
- e. Add at the end a bullet 3, "Tags shall be placed so that if the cooler was tampered with they would be readily broken."
- f. In bullet 5, after the first sentence add: "Air bill numbers and courier names will be added to the COC form prior to sealing the cooler. Coolers will be sealed at the NSWV field location. A air bill copy will be retained with the COC."

32. Page 4-28, Field Custody

In bullet 3, state how the tag will be secured. Tied and taped?

33. Page 4-28, Transfer of Custody Shipment

Add to the sample COC Form a section for the Method of Shipment, Courier Name, and Air Bill Number. Air Bill Numbers are important since the quantity of coolers being shipped needs to be tracked individually.

34. Page 4-29, Laboratory Sample Custody

Add to the COC form boxes for the lab to state the bottle condition was checked, any problems, and the cooler temperature. Don't assume the lab person will always remember your project requires this to be done.

35. Page 4-30

In both the Field Record keeping and Documentation Responsibilities it must be made clear that either the log and calibration sheets, and other paperwork need to be numerical or bound. Also, this section should describe how bound field books will be tracked considering the Navy project is intended to last many years and many books will be used.

All original copies of work are the property of the Navy and will be forwarded to the base upon contract completion. This should be stated in the plan.

36. Storage of records and photo documentation needs to be explained.

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Page 7

37. Page 4-31

The plan needs to address source blanks if a well is installed at ORR.

38. Tables 4-13 - 4-16, are the sample numbers correct if the ORR wells were not all included?

39. Page 5-1

In the third to last sentence, before ORR add: "quarterly and semi-annually for."

40. Page R-1

Change the reference for the GWMP to the approved plan.

41. Include the borings for ABG.

42. Appendix B

- a. The Ground Water Level Measurement Sheet needs to show they are going to be numeric or bound together in a book.
- b. Calibration records must also be included in this or another form and record similarly bound or numeric.
- c. The same comment above applies to the low flow log and the sample log, etc.
- d. The chain of custody form needs a numeric id number log, the items in section 4, temperature check, billing number, courier name, etc. There should be a space for the laboratory name identified, since several labs will be used for the project to make sure the right lab is sent their samples and paperwork.

There should be a Page ___ of ___ in case there are more samples than the page that are going into the same cooler.

It would be to the Navy's benefit to have the form with columns specifically identified before hand for the parameters for the various labs used.

The Navy's name and return address should be on the form in case it should ever be misplaced.

- e. It would be easier to have directions with the form with the form versus going back and forth to text for the field person.
- f. The comments here also apply to the forms repeated in Appendix C.

43. Appendix C

All the SOPs need to be NSWC site-specific. Generic contractor or laboratory SOPs or references should not be used. Remember that this sampling will be occurring over 7 years and longer. The SOPs should also be very "cook book"like. So that the field team can readily do the step by step instructions. Choices of equipment are not allowed. Equipment must be chosen and a backup piece may also be approved for some activities. We have tried to identify where specific areas should change.

a. SOP CTO 38-1

- (1) Page 3 of 20, the general procedure should make it clear that water level readings are made first. If this is change to a step by step approach it would avoid repetition and missing items.
- (2) Site preparation needs to be added. Are sheets going to be used to prevent equipment contamination.
- (3) Add how the purge water will be managed.
- (4) In Section 5.2, state only the equipment that will be used at NSWC.
- (5) Page 4-15 states that a meter will be used for water levels and Page 5 of 20 in the SOP states a steel tape.
- (6) On Page 6 of 20, delete any equipment not applicable to NSWC.
- (7) For the pumps, tubing should be dedicated to save money.
- (8) On Page 7 of 20, you need to be specific to the directions for calibration and usage of the equipment for NSWC specifically.
- (9) In Section 5.5.1.1, pH need to be small letter p.
- (10) Section 5.5.1.3 needs to be specific to the NSWC pumps.

- (11) Since the main text state the equipment chosen, the SOP should be specific to that equipment direction.
- (12) Section 5.5.2.2 needs to be specific to NSWC.
- (13) Section 5.5.2.3 need to be specific to NSWC.
- (14) Section 5.5.2.4 needs to be specific to the chosen equipment. Don't just state manufacturer's direction. *→ reference them.*
- (15) Section 5.5.3.2 needs to be specific to NSWC.
- (16) Section 5.5.3.3 needs to be specific to NSWC.
- (17) Section 5.5.4.4 needs to be specific to NSWC.
- (18) Section 5.5.6.3 needs to be specific to NSWC.
- (19) Section 5.6.2, Item 6, state that this should be 8-24 hours to match the main text.
- (20) Section 5.7.2 needs to reflect the pumps that were installed.

b. SOP CTO 38-2

- (1) Section 3.0, hazardous waste is not being sampled, delete this.
- (2) Section 5.2.1 is not specific to NSWC.
- (3) Section 5.2.2 needs to be specific to NSWC. Change creek to surface water body.
- (4) Section 5.2.3, Move the second paragraph to just after the first sentence. Change ...Springs A and B discharge into at the Delete the "at." The last sentence needs to be specific to NSWC.
- (5) There should be shown text and a figure on where to sample a pool or creek. A specific cross-section to the areas at NSWC would be best.
- (6) Section 5.3.2, the filed parameter list, should "project plan" be the field sampling plan or the ground water monitoring plan?

- (7) The sampling sections should be more step by step how to. Under Dip sampling the "water is often" should be "Water will be."
 - (8) It is not clear if what is recommended under dip sampling will be done or not.
 - (9) Weight bottle sampling needs to be NSWV specific and match Section 4.
 - (10) Section 5.2.3 needs to be NSWV specific. Will the springs be sampled first and then the creek?
- c. SOP CTO 38-3
- (1) Section 5.1 add a space between the paragraphs.
 - (2) Section 5.4.1, put then in the proper order step by step. Add the trademark to Ziploc. State how the tag will be attached.
 - (3) State how big the coolers should be at a minimum.
 - (4) Forms must be cooler specific. You are not allowed to put all the forms in the first cooler.
 - (5) State how and where the seals are attached.
 - (6) Nitrocellulose holding times need to change to match the QAP. Double check this table to the approved QAP.
- d. SOP CTO 38-4
- (1) Sections 1.0, 2.0 and 5.1.1 should "contractor" versus the specific name.
 - (2) Section 4.0 needs to add receipt to the Navy Project Manager.
 - (3) Section 5.3, Change "client" to "Navy." Add "and Agency (or U.S. EPA and IDEM) approval where necessary."
 - (4) Section 5.3.1.2. Separate your tags and labels. Labels need simple basic information to identify the sample. The tag should have the details for analysis and be maintained for the records. See also tag comments later.

- (5) Section 5.3.1.3, a new COC must be made for every cooler. Forms must be approved and represented in this plan. You should not use a variety of forms, this is not showing good quality assurance on record keeping. Although there is not standard form, a site specific form example will be approved as part of this project. Will the Navy be notified of sample record keeping problems?
- (6) Section 5.3.1.4, The purpose of the seal is to show if the cooler has been tampered with, it does not prevent tampering.
- (7) Section 5.3.2, "Geohydrological" should be "Hydrogeological."
- (8) Attachment A, It must be made clear that the logbook is a bound book. The example should show that water level was taken prior to pumping. Logbook entries should be a little more specific to the activities. The example seems to brief.
- (9) Attachment B-1, If these log sheets are used, they must be numeric or bound in a book. There should be a space for the seal number and tag numbers. The time of the sample should be for every bottle filled not just the beginning and end time.
- (10) There really is not explanation of tracking the form and book numbers, only sample numbers.
- (11) Attachment B-2, the form needs to be bound or numeric.
- (12) Attachment B-3, the form needs to be bound or numeric. A figure should also go with the form. If depth is measured there should be an explanation of the method somewhere.
- (13) Attachment B-4, its not clear when this form will be used. Is it for purge water or something else? Again, if used it needs to be bound or numeric.

- (14) Attachment B-5, The Navy's address should be on the tag. Time should be military not hours. The site should be identified. Samplers should be signatures. Analytes should be NSWC specific to include the explosives, etc. There should be a space for lab use to identify the sample. The needs to be sample tag numbers. Labels should have the basics on numbers signatures date, time, etc. They need to be separate. Bottle Lots must also be tracked in the log book.
 - (15) Attachment B-6, see comments from Appendix B.
 - (16) Attachment B-7, there needs to be a seal number. This should be tracked on the COC and the log book.
 - (17) Attachment C-1, see comments from Appendix B.
 - (18) Attachment C-2, Add a column for well pad/gravel specifically. This form needs a date, time, signature project number and location, etc. Number or bound.
 - (19) Attachment C-3, same comments on tracking.
 - (20) Attachment D, same comments on tracking. Date, time, signature, etc.
 - (21) Attachment E, why is this form necessary when the information should be in the log book.
- e. SOP CTO 38-5
- (1) Section 3.0, potable water at NSWC is not municipal, it is from their own water treatment plant from Lake Greenwood.
 - (2) Solvents, be NSWC project specific. We are not encouraging the use of solvents if possible, since Appendix IX analyses are done once a year.
 - (3) Section 5.1, The SOP does not match the text in Chapter 4 of the plan. See previous U.S. EPA comments on decontamination procedures.
 - (4) Section 5.1.1, filtering is not required "occasionally" it is required on all sampling events. Change the text.
 - (5) Section 5.1.2, it is a graduated cylinder not a gradiated one.

- (6) Section 5.3, purge water is collected and treated at NSWC, not disposed on the ground. Modify this text. It does not match the main text.

f. SOP CTO 38-6

- (1) Section 5.2, Add "Condition of any gravel or concrete pads" to the bullet points.
- (2) Collars are only to be replaced where this is applicable.
- (3) There are no procedures for site preparation for sampling equipment storage, handling, etc.
- (4) Section 5.3.1, Region 5 requires all wells to be identified by latitude and longitude. Arbitrary datum are not allowed.
- (5) Section 5.3.2, Be specific about what "effective technique" will be used.
- (6) RCRA requires static water level readings to 0.01 feet, this is not optional. The probe to be used in the main text complies with this requirement. This section contradicts with that.
- (7) Steel tape may be identified as a backup but the plan must include directions for that besides the probe.
- (8) Be specific to NSWC, will a pressure transducer be used?
- (9) Section 5.3.5, Both the log book and the sheets may be used, if they meet the record keeping requirements we addressed earlier.
- (10) It gets confusing between SOPs what exactly the flow is of the use of SOPs and which text should be followed. Some things are repeated and some are not.
- (11) Section 5.3.6, all elevations should be identified in the ground water plan prior to permitting. They may be premarked on data sheets.
- (12) Attachment A, See previous comments on this same form. Again, things are becoming repetitive this is the third time the form is shown.
- (13) Attachment B, same comment as for Attachment A.

g. SOP CTO 38-7

- (1) Section 5.1, do both methods described apply to NSWC?
- (2) Section 5.3, it is not clear what will regulatorally happen to the data collected. Sheets will be reviewed, calculations made, and the information put in the file, what then?

h. SOP CTO 38-8

- (1) Why is there more detail for this SOP versus procedures for the other instruments used in other SOPs.
- (2) Figure 5-1, dates and times, personnel, etc. need to be identified on the form.
- (3) Are well readings placed in the logbook?

i. SOP CTO 38-9

- (1) See comments from section 4 of the main text concerning sample identification. Resampling is not explained.
- (2) In this SOP you state that the logbook will be used, in others the log sheets. We need to have some consistency.

j. SOP CTO 38-10

This is a generic SOP, will the Navy follow the previous pump test procedure performed? Will this be necessary at all sites? We know the results would not be useful at ABG since a pump test was already performed there. Need to discuss why regulatorally would be required for the sites.

k. SOP CTO 38-11

- (1) Section 5.1.1, realistically the wells at ABG will not be monitored within 2-3 hours. It is acceptable if the readings are all within 24 hours.
- (2) Make the text more NSWC specific, there are no tidal affects in Indiana.
- (3) The SOP should address how karst features will be identified on the flow maps.

(4) Explain how documentation will be used, sent where.

44. Appendix D

We would like to discuss that picric and picramic acid should be added to Subset A and picramic acid to Subset B since they are degradation products from TETRYL, if TETRYL exists in the plume(s) or was used in the wastes treated at the SWMUs.