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NWS EARLE
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TRANSMITTAL LETTER AND U S NAVY RESPONSES TO STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION LETTER DATED 16 MAY 2002
REGARDING SUBPART X PERMIT APPLICATION FOR OPEN BURNING/OPEN
DETONATION OF WASTE PROPELLANTS AND EXPLOSIVES NWS EARLE NJ

4/4/2003
NWS EARLE

**DEPARTMENT OF THE NAVY**

NAVAL WEAPONS STATION EARLE
201 HWY 34 SOUTH
COLTS NECK, NEW JERSEY 07722-5001

IN REPLY REFER TO

5090
Ser N8E/013
4 Apr 03

Mr. Michael Gerchman, Chief
State of New Jersey Department of Environmental Protection
Bureau of Hazardous Waste and Transfer Facilities
Division of Solid and Hazardous Waste
401 East State Street
P. O. Box 414
Trenton, New Jersey 08625-0414

Dear Mr. Gerchman:

Subj: SUBPART X PERMIT APPLICATION FOR OPEN BURNING / OPEN DETONATION OF
WASTE PROPELLANTS AND EXPLOSIVES AT NAVAL WEAPONS STATION EARLE,
COLTS NECK, MONMOUTH COUNTY, NEW JERSEY, US EPA ID No. NJ0 170 022 172

Enclosed is Naval Weapons Station Earle's response to your letter of 16 May 2002, which expressed concerns raised regarding our latest SubPart X application. We appreciate the efforts put forth by the NJDEP and look forward to closing the application process and moving forward with the site-specific work to secure a permit.

If you have any further questions or concerns, please contact Mr. Lawrence Burg, (732) 866-2621, lburg@ealre.navy.mil.

Sincerely,


B. L. SCHOLLEY
Captain, U.S. Navy
Commanding Officer

Copy to:
CNRNE (N8)
EOD DET EARLE
Staff Judge Advocate
EFANE (Code 18 Mr. Paul Burgio)
NSWC Indian Head Div (Code 0E5 Ms. Lois Bohne)
U.S. EPA REGION II (Mr. Barry Tornick)
Tetra Tech NUS, Inc. (Mr. Ralph Basinski)



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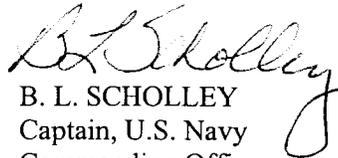
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**NAVAL WEAPONS STATION EARLE
SUBPART X PERMIT APPLICATION
NOTICE OF DEFICIENCY ITEMS**

This document provides responses to the New Jersey Department of Environmental Protection (NJDEP) Notice of Deficiencies (NODs) that were issued to Naval Weapons Station Earle (NWS Earle), Colts Neck, New Jersey in June 2002. The NODs are shown in bold font. The response to each NOD is in regular font. New text for the Subpart X, Part B permit application for open burning/open detonation (OB/OD) is shown in italic font within quotation marks.

APPLICATION DEFICIENCIES

1. **The response to Comment 2 of the January 1999 Notice of Deficiency (NOD) states that the construction of concrete secondary containment for the open burning (OB) pans is not practical due to the dual use of the bermed areas for OB and open detonation (OD). However, as an alternative, NWSE proposed to design and construct a steel or nonflammable plastic portable container that would provide secondary containment for the OB pans. The Department recommends that the two treatment operations, OB and OD, be segregated into two distinct bermed areas in order to establish points of compliance for groundwater monitoring. The point of compliance for the OB activity being nearer the OB area than a similar point of compliance for the OD area due to the shock wave. The use of portable secondary containment is conceptually acceptable provided the Department approves the portable containment's design and its use is restricted to a specific bermed area(s). Failure to define specific area(s) for OB and OD activities in lieu of the entire OB/OD range as currently proposed will require additional groundwater, soil, sediment, and surface water sampling and analysis to monitor impacts from the entire range. Please revise the application to clearly define separate areas for OB and OD and provide specific design information for the portable secondary containment.**

DISCUSSION ITEM

- Separation of OB and OD into two distinct bermed areas. Otherwise additional soil/groundwater S&A
- Design of portable secondary containment for burn pans
- DEP approval of design

RESPONSE (RB)

2. **Section B-1c(1) Creosote and PCP-Treated Dunnage**

- a. **The response to the March 1998 NOD states that, "NWS Earle does not currently use creosote or PCP-treated wood as dunnage." This does not mean that these specific materials were not used in historic burning operations. In addition, given the type of soils present at the site, it is also possible that these contaminants could have made it to the ground water. Thus, to prematurely truncate the analytical sampling at surface soil only is inappropriate. Also, the Navy has "groomed" the site several times since Department representatives inspected the property. This mixing and churning of the site soils only serves to facilitate migration of contamination to deeper soil horizons, and potentially to the ground water. The baseline contaminant profile, which is to be developed for the site prior to initiating the permit, must adequately address/identify any existing onsite/offsite contamination.**

DISCUSSION ITEM

- Impact of site grooming on distribution of contaminants
- Consideration of redistribution of contaminants on sampling strategy (depths).

RESPONSE (RB)

- b. **The response to the March 1998 NOD states that if surface soil samples are found to contain PCPs or dioxins above anthropogenic levels subsurface soils will be tested. This is not acceptable. Soil cleanup criteria have been established by the Department for various compounds and elements. In addition, there are Federal requirements for soil cleanup levels of PCBs. The application must be revised to state that State and Federal soil cleanup criteria will be used to determine if further action is warranted.**

DISCUSSION ITEM

- Consideration of anthropogenic concentrations of dioxins
- Addition of a statement that state and federal criteria will be used to determine if further action is warranted.

RESPONSE (RB)

3. **Section C-1g(1)(a) Propellants**

The response to the March 1998 NOD states that total organic halides (TOX), total organic carbon (TOC) and nitrate-nitrite analysis will be used, in part, to determine the discharge of hazardous constituents to the groundwater and soils. The soils methods for TOX, TOC and nitrate-nitrite must be provided for review. To the Department's knowledge, there are no regulatory methods for these analyses in soils. There is only a guidance method from USEPA Region 2 for TOC in soils. The plan must detail how these analytical results will relate to the determination of the discharge of hazardous constituents into ground water and soils. If the facility is planning to use changes in concentration in groundwater to determine potential impact, baseline for the facility must be determined outside of the OB/OD unit.

DISCUSSION ITEM

- Response intended to deal only with groundwater. Modify accordingly.

RESPONSE (RB)

4. **Section C-1g(2) Wastes Treated**

The Department agrees that testing of the wastes prior to OB/OD will not be performed due to danger to personnel involved. However, waste analysis issues arise after treatment and when monitoring contaminant levels in the soils and ground water in the area. Based on the list of ordnance and munitions provided in Appendix C-1, Waste Classification, the composition and variety of the materials listed greatly exceeds the compounds that are being included in the analysis of the waste ash, soils, and groundwater. Due to the pyrolysis of the propellants and explosives in the OB/OD range there are compounds that are either destroyed or released into the atmosphere rather than entering the soils and groundwater at the OB/OD. However, based on the compounds included in the analysis of soils, groundwater and waste ash, it cannot be determined if these compounds are

present. The facility did not analyze for all of the compounds listed in Appendix C-1. An analysis of these compounds must be performed.

Note that this comment was originally made in the March 1998 NOD as Comment 8b. With the exception of the example regarding metallic salts, NWSE failed to respond.

DISCUSSION ITEM (RB)

- Practicality of analysis of all compounds listed in Appendix C-1.

RESPONSE (RB)

5. Section C-2d Frequency of Analysis

This section states that the analysis of the waste ash generated from the open burning operation indicates that metals and 2,4-dinitrotoluene have been detected above TCLP regulatory limits. In accordance with Land Disposal Restrictions at 40 CFR 268.7(a)(1), if a generator determines that they are managing a waste or soil contamination with a waste, that displays a hazardous characteristic of ignitability, corrosivity, reactivity, or toxicity, they must comply with the special requirements of 40 CFR 268.9 in addition to any applicable requirements of 40 CFR 268.7. Please revise this section of the application to conform to Land Disposal Restrictions.

DISCUSSION ITEM (RB)

- Section C-2d will be revised to address analysis of underlying hazardous constituents as required by 40 CFR 268.9.

RESPONSE (RB)

6. Section C-3 Quality Assurance

Please provide the exact citations to USEPA SW846 regarding the laboratory's procedures for chain-of-custody. Please note that the chain-of-custody requirements must be documented in a Quality Assurance Project Plan written by the facility and provided to the laboratory.

DISCUSSION ITEM

- A citation will be provided to SW-846.
- Existing section E-1-8(d)(2)(i) of the Part B application describes COC procedures for the groundwater monitoring plan.
- Existing SOP 6-154 describes COC requirements for the Baseline Environmental Monitoring Plan.

RESPONSE (TJ)

Laboratories selected to support this project will have chain of custody requirements in place for the duration of the project that are compliant with SW-8846. The following citation will be provided to SW-846:

“U.S. EPA, 1986. Test Methods for Evaluating Solid Waste; Physical/Chemical Methods (SW-846), 3rd edition, up to and including Update III (Chapter NINE, Section 9.2.2.7), Office of Solid Waste and Emergency Response, Washington, DC. 1986

7. **Table E-1-5 Federal and State Groundwater Quality Criteria Table**

- a. **A column of the table is labeled Federal Maximum Contaminant Level (MCL). However, the concentrations in the table are Federal Primary Drinking Water Standards. Please revise this table to include the correct citation.**
- b. **The following Primary Drinking Water Standards must be added to the table:**

<u>Primary Standard</u>	<u>ug/L</u>
Antimony	6
Arsenic	10
Cyanide	200
Selenium	50
Thallium	2

- c. **The following Secondary Drinking Water Standards must also be added to the table:**

<u>Primary Standard</u>	<u>ug/L</u>
Aluminum	0.5
Iron	0.3
Manganese	0.05
Silver	0.1
Sodium	50
Zinc	5

DISCUSSION ITEM

- Secondary drinking water standards are not health based standards.

RESPONSE (TJ)

- The primary and secondary drinking water standards will be added to Table E-1-5, as requested and the table column will be labeled to be consistent with the data in the table.

- d. **For the following compounds the concentrations labeled “Higher Value of PQLs or Groundwater Quality Criteria” must be revised to include the higher of the two values:**

Arsenic	Beryllium	Lead
Nitrobenzene	2,6-dinitrotoluene	2,4-dinitrotoluene
Heptachlor	Methylene chloride	1,1-dichloroethane

DISCUSSION ITEM

- All compounds concentrations in both the Groundwater Monitoring Plan and the Baseline Monitoring Plan are being reviewed to incorporate the latest NJAC PQLS or criteria.

RESPONSE (TJ)

- The greater of the PQL and the groundwater quality criterion will be listed for the nine chemicals in Table E-1-5 that are cited in this comment 7.d (i.e., arsenic through 1,1-dichloroethane).

- e. **The table must be revised to include the exotic explosive compounds.**

DISCUSSION ITEM

- Addition of exotic explosive compounds should be based on results of Baseline Environmental Monitoring.

RESPONSE (RB)

- f. **The table must be revised to state that butylbenzylphthalate is a phthalic acid ester not a chlorinated acid derivative.**

DISCUSSION ITEM

- OK

RESPONSE (TJ)

Table E-1-5 will be revised to indicate that butylbenzylphthalate is a phthalic acid ester rather than a chlorinated acid derivative.

8. Table E-1-8 EOD Area Groundwater Detection Monitoring Program Sampling Frequency

- a. **Table E-1-8 must be revised to reflect the analytical work that will occur during baseline monitoring.**

DISCUSSION ITEM

- The fourth bullet on Page 1 of the February 2000 version of the Baseline Environmental Monitor Plan states that one of the objectives is to *“Provide information for use in development of future monitoring requirements for inclusion as permit conditions.”* Therefore it will be necessary to modify this table once the baseline environmental monitoring is complete.

RESPONSE (TJ)

The baseline monitoring will provide input for establishing analyte lists for future monitoring requirements. Table E-1-8 will be modified after completion of the baseline monitoring plan to reflect analytical work that will occur during monitoring under the permit.

- b. **The parameters listed in this table still do not adequately address the waste classification list generated by the facility. The metals parameters need to be expanded to include arsenic, beryllium, cadmium, mercury, iron, and copper.**

DISCUSSION ITEM

- These metals will be added.
- See also the response to 8.a.

RESPONSE (TJ)

Arsenic, beryllium, cadmium, mercury, iron, and copper will be added to Table E-1-8.

- c. **Pesticides, dioxins, and dibenzofurans are also missing from the analytical parameters in the table. These constituents must be included, as they are by-**

products of onsite operations (e.g., burning operations and possible insecticide/pesticide applications to control mosquitoes and associated insects).

DISCUSSION ITEM

- Addition of these items is not necessary for a detection monitoring program.
- This comment appears to be based on the assumption that compliance monitoring is required for all of these compounds.
- See also the response to 8.a..

RESPONSE (TJ)

Pesticides, dioxins, and dibenzofurans will be added to Table E-1-8.

d. The table must be revised to include the exotic explosive compounds.

DISCUSSION ITEM

- See the response to comments 8a, 8b and 8c.

RESPONSE (RB)

e. The table must be revised to include picric acid

DISCUSSION ITEM

- See the response to comments 8a, 8b and 8c.

RESPONSE (TJ)

Because the analysis of picric acid relies on the detection of the picrate anion, ammonium picrate will be added to Table E-1-8 rather than adding picric acid.

f. The total organic halogens must be detailed in a footnote attachment.

DISCUSSION ITEM

- ????????????????

RESPONSE (RB)

g. This table also is in conflict with Table E-1-9 that specifies the EOD Detection Monitoring Program and Analytical Summary. These conflicts must be rectified.

DISCUSSION ITEM

- Table E-1-9 will be modified to reflect the agreed-upon monitoring program.
- See also the responses to 8a, b, c, d, e, and f.

RESPONSE (TJ)

Table E-1-9 will be modified to reflect the agreed-upon monitoring program.

9. **Section E-1-8a Indicator Parameters, Waste Constituents, Reaction Products to be Monitored**

The Department has not agreed that compounds that may be present in “small quantities” will not be tested. The facility was unable to provide complete information on the wastes that were handled due to incomplete or missing records prior to 1994. The facility cannot provide proof that these compounds were not treated at the OB/OD unit in significantly higher quantities than for the period in which records have been found (1994-present). For that reason, the facility is being required to analyze for the exotic explosives and other compounds in the Baseline Environmental Monitoring Plan. The application must be revised to state that the actual quantities treated at the OB/OD range prior to 1994 is unknown due to missing or incomplete records.

DISCUSSION ITEM

- The types and quantities of energetics present in military munitions has not changed significantly since the 1950s. Therefore, the relative quantities of the compounds in military munitions has not changed. The quantities present in munitions are governed by the function in the explosive train. For example initiating compounds (lead azide, DDNP, lead styphnate, tetracene, KBNDF) are only present in small quantities (grains or grams/item) because they are extremely sensitive. These are used to initiate explosions in less sensitive explosives. Less sensitive explosives (HMX, RDX, etc.) are present in much larger quantities (pounds/item). This relationship has not changed because their explosive properties have not changed. Therefore, it is not necessary to know the actual quantities of munitions treated prior to 1994 to determine which compounds could be emitted in the largest quantities. In both cases (pre-1994 and post-1994) the explosive compounds likely to have been released would be the same.

RESPONSE (RB)

10 **Table E-1-9 EOD Area Groundwater Detection Monitoring Program Sample Preservation/Analytical Summary**

- a. **The table lists Method 8015B is to be used for 1,4-dioxane, acetonitrile, isobutyl alcohol and propionitrile. This does not agree with the Baseline Environmental Monitoring Plan. This inconsistency must be corrected.**

DISCUSSION ITEM

- The inconsistency will be corrected.

RESPONSE (TJ)

The baseline environmental monitoring plan and Table E-19 will show Method 8015B as the analytical method for 1,4-dioxane, acetonitrile, isobutyl alcohol and propionitrile.

- b. **The table must be revised to include the exotic explosive compounds.**

DISCUSSION ITEM

- See the response to comments 8 and 9.

RESPONSE (RB)

- c. **As indicated in item 8 above, the conflicts with Table E-1-8 and the Baseline Environmental Monitoring Plan must be rectified and the table revised accordingly.**

DISCUSSION ITEM

- The fourth bullet on Page 1 of the February 2000 version of the Baseline Environmental Monitor Plan states that one of the objectives is to *“Provide information for use in development of future monitoring requirements for inclusion as permit conditions.”* Therefore it will be necessary to modify this table once the baseline environmental monitoring is complete.

RESPONSE (RB)

BASELINE ENVIRONMENTAL MONITORING PLAN DEFICIENCIES

11. Section 1.1.2 Open Burning/Open Detonation (OB/OD) Unit

This section details the alleged activities of the two units at the base. However, not all the OB/OD areas that were used historically have been adequately identified and investigated. While the aerial photo presented in the response to the January 1999 NOD provides some additional details, it does not show the burn area and berms that were observed by representatives from the department during their site inspection in 1999. This unit was observed proximate to the shelter. The section must be revised to address the unit observed during the site inspection and any other historical OB/OD units at the range.

DISCUSSION ITEM

- Need to discuss locations where OB/OD historically took place at the unit.

RESPONSE (RB)

12. Section 1.2 Baseline Environmental Monitoring Program

- a. **The section must be expanded to incorporate the investigation of all historical OB/OD units.**

DISCUSSION ITEM

- Need to discuss locations where OB/OD historically took place at the unit.

RESPONSE (RB)

- b. **The response to comment 2 of the January 1999 NOD regarding “Delineation of the Vertical Component” is unacceptable. The shallow ground water is already impacted by contamination discharged from historic activities conducted at the site. Thus, it is imperative that the vertical component of this contamination not be delineated. This will require a hydrogeologic investigation, which will vertically profile the aquifer, and then appropriately screened monitor wells must be installed to verify and provide a compliance monitoring point for any migrating pollutants. The plan must be revised to address this investigation.**

DISCUSSION ITEM

- The second paragraph of the response committed to vertical profiling of the aquifer by collection of samples at three different depths using a Geoprobe. Section 1.4 of the Baseline Environmental Monitoring Plan provides details.
- Does NJDEP want wells rather than Geoprobe?

RESPONSE (RB)

- c. **The response to comment 2 of the January 1999 NOD regarding “Characterization of ground water contamination within the site”, is also unacceptable. The monitoring regulation cited refers to compliance monitoring and does not apply to generation of a baseline assessment of the site contamination. The plan must be revised to address characterization of groundwater contamination with the OB/OD area.**

DISCUSSION ITEM

- The Baseline Environmental Monitoring Plan address both horizontal and vertical profiling of groundwater within the OB/OD Area.

RESPONSE (RB)

- d. **In the response to comment 13 of the January 1999 NOD, NWSE proposes to collect soil samples at 6 to 12 inches (surface sample) and above the water table and within the water table at the OD pits. Depending on the actual depths of the pits, worse case contamination could be missed using this sampling approach. “Grooming” operations at and within the site has mixed the soils and potentially facilitated vertical migration of contaminants, which must be investigated and evaluated in the baseline-monitoring plan. The plan must verify the depth to ground water and the depth of the deepest historical pit.**

DISCUSSION ITEM

- Grooming operations involve “tilling” of the upper soil to an approximate depth of ????

RESPONSE (RB)

13. Section 1.2.2 Constituents Analyzed, Laboratory Reporting Limits and Quality Assurance

- a. **Appendix IX groundwater constituents are not divided into individual parameter groups such as volatile organic compounds. It is an encompassing list, which includes volatile organic compounds, inorganic compounds, pesticides, base neutrals, etc. Citing incorrect parameter references presents confusion. The plan must be revised to use proper parameter references.**

RESPONSE (TJ)

The links in Tables 1-1, 1-2, 1-4, 1-5, 1-6, 1-7, and 1-8 to chemical classes such as volatile chemicals and Appendix IX chemicals will be deleted from the tables.

- b. **This section references 40 CFR Part 264 Appendix IX for the collection and analysis of both soil and groundwater samples. Note that Appendix IX to Part 264**

is a Groundwater Monitoring List and is not appropriate nomenclature for soil sampling and analysis.

RESPONSE (TJ)

This comment has been noted, as advised. The text, as written, indicates that the Appendix IX chemicals are being analyzed in surface water, groundwater and soil samples. This is being done so that relationships may be discerned between Appendix IX chemical contaminants in groundwater and other media that could influence or be influenced by groundwater contamination.

No change has been made to the text in response to this comment.

- c. **The baseline-monitoring plan must provide a complete and comprehensive representation of the existing onsite/offsite contamination, which is present at the OB/OD units. Therefore, the list of analytical parameters must be revised accordingly. Conflicts with Tables E-1-5, E-1-8, and E-1-9 of the permit application must be rectified:]**

DISCUSSION ITEM

- The fourth bullet on Page 1 of the February 2000 version of the Baseline Environmental Monitor Plan states that one of the objectives is to *“Provide information for use in development of future monitoring requirements for inclusion as permit conditions.”* Therefore it will be necessary to modify tables E-1-5, E-1-8, and E-1-9 based on the results of the Baseline Environmental Monitoring Program.

REPSONSE (RB)

- i. **This section must be revised to include the analysis of semivolatile organic compounds by USEPA SW846 Method 8270C (GC/MS semivolatiles).**

RESPONSE (TJ)

The list of analytical parameters in the baseline environmental monitoring plan will be revised to include the analysis of semivolatile organic compounds by USEPA SW846 Method 8270C (GC/MS semivolatiles).

- ii. **The section must be revised to include the analysis of dioxins, furans, cyanides, and sulfides in the groundwater.**

RESPONSE (TJ)

The list of analytical parameters in the baseline environmental monitoring plan will be revised to include the analysis of dioxins, furans, cyanides, and sulfides in the groundwater.

- iii. **The section must be revised to include analysis for total organic carbon (TOC) and total organic halides (TOX).**

RESPONSE (TJ)

The list of analytical parameters in the baseline environmental monitoring plan will be revised to include the analysis of total organic carbon (TOC) and total organic halides (TOX).

- iv. **The section must be revised to include analysis for the expanded list of metals, including arsenic, beryllium, cadmium, mercury, iron, and copper. Groundwater and surface water samples must be analyzed for total metals**

concentration. If NWSE wishes to include dissolved analyses in addition to total analyses, this is acceptable.

RESPONSE (TJ)

The list of analytical parameters in the baseline environmental monitoring plan will be revised to include the analysis of an expanded list of metals, including arsenic, beryllium, cadmium, mercury, iron, and copper. It is noted that dissolved metals analyses may be conducted at the discretion of NSW.

- v. The section must be revised to include analysis for pesticides.**

RESPONSE (TJ)

The list of analytical parameters in the baseline environmental monitoring plan will be revised to include the analysis of pesticides.

- vi. The section must be revised to include analysis for picric acid.**

RESPONSE (TJ)

The picric acid analysis targets the picrate anion, therefore the list of analytical parameters in the baseline environmental monitoring plan will be revised to include the analysis of ammonium picrate (rather than picric acid).

- vii. The section must be revised to include analysis for nitrate-nitrite, biochemical oxygen demand (BOD), chloride, chemical oxygen demand (COD), ammonia, phosphate, sulfate, and turbidity.**

DISCUSSION ITEM

- Scope of analytical program.

RESPONSE (TJ)

The list of analytical parameters in the baseline environmental monitoring plan will be revised to include the analysis of nitrate-nitrite, biochemical oxygen demand (BOD), chloride, chemical oxygen demand (COD), ammonia, phosphate, sulfate, and turbidity.

Note: Changes to analyte lists will be reflected throughout the document, as necessary (e.g., with respect to quality control sample analyses, and text that must be changed to render it consistent with the revised analyte lists).

- d. Trinitroresorcinol is a compound of concern at the site. If samples are to be analyzed for resorcinol, the plan must describe the correlation to the concentration of trinitroresorcinol in the samples.**

RESPONSE (TJ)

NWSE will contact the analytical laboratory to determine whether resorcinol or trinitroresorcinol concentrations will be measured. If resorcinol will be determined after conversion of trinitroresorcinol to resorcinol, the conversion factor equating resorcinol concentrations to trinitroresorcinol concentrations will be included in the monitoring plan.

- e. **Page 1-5 of the plan states that the following are indicators for waste that has been released to soils and ground water: explosive compounds, perchlorates, total and dissolved (groundwater only) metals. However, all of the analytical parameters are potential indicators of releases. This section must be revised to state that all of the parameters that are sampled and analyzed for are potential indicators of the release of waste.**

RESPONSE (TJ)

The text will be revised by deleting the reference to “indicators of releases of waste constituents” from the third paragraph of Section 1.2.2. A proposed rewrite of Section 1.2.2 is provided as Attachment 1 to these comment responses.

- f. **Page 1-6, second paragraph of the plan states that in 1994/1995 a Resource Conservation and Recovery Act (RCRA) Remedial Field Investigation (RFI) was conducted and ground water samples indicated the presence of RDX in one well and chloroform in two wells. A summary of fourth round of 1995 ground water sampling results included with the revised Subpart X permit application dated October 1997 indicates the presence of 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 2,4,6-dinitrotoluene, 2,4-dinitrotoluene, 4-amino-2,6-dinitrotoluene, benzene and naphthalene in various wells. This section must be revised to include the actual contaminants that were detected in 1991, 1994, and 1995.**

DISCUSSION ITEM

- These explosives were detected in MW 02GW06, which is located in the center of the OB/OD Unit. The statement referenced in the comment was intended to apply only to the downgradient wells located at the POC. This section will be revised to discuss the positive detections of the these additional explosive compounds.

RESPONSE (RB)

- g. **Mass Spectral Interpretations of Tentatively Identified Compounds**

Page 1-6 of the plan must be revised to include semivolatle compounds and thirty (30) tentatively identified compounds.

DISCUSSION ITEM

- Please see response to comment 13.c.vii.

RESPONSE (TJ)

The baseline environmental monitoring pan will be revised to include the analysis of semivolatle compounds and the reporting of up to 30 tentatively identified semivolatle compounds.

- h. **Quality Assurance**

- i. **Severn Trent Laboratories (STL)-Whippany has been closed and operations have been transferred to other STL facilities. Please provide the name and location of the alternate laboratory that will be used.**

Note that in accordance with N.J.A.C. 7:18-2.2, no laboratory other than a certified environmental laboratory shall analyze samples for the purpose of establishing compliance with any regulatory program. It is the

responsibility of the facility to determine whether the laboratory that has been contracted with holds the proper certifications for each specific analysis. A laboratory may analyze for any element or compound for which the Department does not offer certification.

DISCUSSION ITEM

- Section 1.2.2 of the plan, which includes the Quality Assurance section will be rewritten. A proposed revision is provided as Attachment 1 to these comment responses. The final version of this revision will include the correct name and location of each laboratory used in support of this project. A statement will be included in Section 1.2.2 that says: *“Only a certified environmental laboratory shall analyze samples for the purpose of establishing compliance with any regulatory program.”*

RESPONSE (TJ)

See DISCUSSION ITEM.

- ii. **Page 1-6 of the plan states that STL-Whippany could not analyze for a list of eight volatile compounds. The facility must find a laboratory to do these analyses. Additionally, not all of these compounds are volatile compounds. Six of the compounds are amenable to semivolatile analyses or are semivolatile compounds. The compounds are: 2:picoline, hexachloroethane, nitrobenzene, n-nitroso-dibutylamine, o-toluidine, and pyridine. The two remaining compounds, 1,4-dioxane and allyl chloride, are considered to be volatile compounds.**

DISCUSSION ITEM

- The misclassification of volatile chemicals as semivolatile chemicals will be corrected in Tables 1-1 and 1-2. All laboratory certifications will also be indicated in Tables 1-1 and 1-2 that are referenced in Section 1.2.2. rather than in the Section 1.2.2 text.

RESPONSE (TJ)

See DISCUSSION ITEM.

- iii. **The plan must be revised to include the preparation and cleanup methods that are required for each matrix being sampled. In addition, the laboratory must be certified for the appropriate preparation and cleanup methods.**

DISCUSSION ITEM

- The sample preparation and cleanup methods will be included in the revised Tables 1-1 and 1-2.

RESPONSE (TJ)

See DISCUSSION ITEM.

- iv. **Quanterra-Knoxville has changed its name to STL-Knoxville and is certified for SW846 Method 8290. The plan must be revised to include this name change.**

RESPONSE (TJ)

The third to last paragraph of Baseline Environmental Monitoring Plan Section 1.2.2 will be deleted and the second paragraph of the Quality Assurance subsection of Section 1.2.2 will be revised to read as follows:

Please see the response to comment 13.h.i

v. The plan must be revised to address the following issues:

- **The matrix spikes, matrix spike duplicate and laboratory duplicate samples must be from samples collected at the site.**
- **The plan must include the Laboratory Control Samples required by the methods.**
- **The quality control limits established by Tetra Tech NUS, Inc. or inherent to the analytical methods used in the analysis must be provided.**

DISCUSSION ITEM

- Need to provide this info.
- The plan has been revised to state:
- *"Only samples collected from this site may be used for matrix spike, matrix spike duplicate and laboratory duplicate samples."*
- *Laboratory quality control requirements, including laboratory control samples (LCSs) have been added in Tables _____ and a reference to those tables is now included in Section _____.*

RESPONSE (TJ)

The Baseline Environmental Monitoring Plan will be revised to include a statement that matrix spike duplicate and laboratory duplicate samples must be from samples collected at the site. In addition, the plan will include LCS samples required by the analytical methods and the quality control limits established by Tetra Tech NUS, Inc. or inherent to the analytical methods used in the analyses.

- vi. The plan states that data packages and validation letters will be available to the Department. Complete data packages and validation letters including any data validation report worksheets generated by the validators must be submitted to the Department with the submission of the validated data.**

RESPONSE

The baseline environmental monitoring plan will be revised to state:

"Complete data packages and validation letters including any data validation report worksheets generated by the validators will be submitted to the NJ DEP with the submission of the validated data."

- vii. The Tetra Tech NUS, Inc. validation procedures for the analysis of explosives, perchlorates and exotics (including Method 8330) must be provided at the time of submission of the validated data.**

RESPONSE (TJ)

Copies of the validation procedures for the analysis of explosives, perchlorates and exotics (including Method 8330) will be provided to NJDEP at the time of submission of the validated data.

j. Silver Analysis for Various Matrices

The Office of Quality Assurance (OQA) has modified its procedures for SW846 analysis of silver for both TCLP and routine analysis.

If the silver concentration in the sample is determined to exceed 0.1 mg/l or 50 mg/kg using the standard digestions in SW846, such as Method 3050 or Method 3010A, followed by routine inorganic analytical methods, such as SW846 Method 6010B, the laboratory is required to redigest the sample using a portion of the original sample following the procedures in Section 1.5 of USEPA Method 200.2. Laboratories must modify their Standard Operating Procedures to address this additional requirement.

The laboratory will not have to be certified for Methods 7760A or 7761 for silver analyses. The OQA has revised its requirements regarding the use of USEPA SW846 Method 7760A for Silver digestion prior to the analysis of samples by USEPA Method 6010B ICP Trace Metals. The revised requirement is for aqueous and solid matrices and the TCLP extracts generated by SW846 Method 1311. The digestion procedure for SW846 Method 7760A is no longer required for the separate silver digestion. Instead the OQA is requiring the laboratories to add Section 1.5 of USEPA Method 200.2 to the Method Standard Operating procedures for SW846 Methods 3010A and 3050B.

Samples received from known silver sources may need special digestion procedures. The laboratories must demonstrate that the combination of preparative and determinative methods is appropriate and produces data of the quality needed for the particular application.

RESPONSE (TJ)

Tables 1-1 and 1-2 will be revised by addition of a footnote requiring re-analysis of a portion of the sample by Section 1.5 of USEPA Method 200.2 when the silver concentrations is determined to exceed 0.1 ug/L or 50 mg/kg using the currently designated sample preparation and analysis methods. The following text will also be added to Section 1.2.2 of the Baseline Environmental Monitoring Plan:

“The laboratories must demonstrate that the combination of preparative and determinative methods is appropriate and produces data of the quality needed for the particular application.”

14. Section 1.3.1 Biased Sample Locations

- a. The section must be revised to address the additional analytical parameters discussed above.**
- b. The section must address the usability of the volatile organic results from samples collected at 0.5-1.0 ft. below ground surface. Use of this data is questionable due to the grooming activities at the site.**

RESPONSE (RB)

Please see response to Comment 2.a.

- c. Poned Water Locations**

RESPONSE (RB)

At a minimum, one to two samples must provide a vertical analytical soil profile to the water table.

d. Berms

The numbers of samples to be collected and subsequently sent for confirming chemical analyses must be expanded to include the historical OB/OD units. Also, an additional soil sample must be added to the profile of the berms. This sample must be collected from the interface of the pile and the original grade of the site prior to construction of the berms. Additional sample points are detailed on Attachment 1.

RESPONSE (RB)

e. Berm Interior Samples

The numbers of samples to be collected and subsequently sent for confirming chemical analyses must be expanded to include the historical OB/OD units. If it is known that OB/OD operation took place within the same berm structure, then one to two sample locations at a minimum must be completed with a profile of chemical analysis to the water table. Additional sample points are presented on Attachment 1.

RESPONSE (RB)

15. Section 1.3.2 Grid Sample Locations

- a. The section must be revised to address the additional analytical parameters discussed above.

RESPONSE (RB)

- b. The grid sample locations must be expanded to include the historical OB/OD units. Additional sample points are plotted on Attachment 1.

RESPONSE (RB)

16. Section 1.5 Phase III Baseline Environmental Monitoring Program

This section must be revised to include the following narrative: "Subject to the data and investigation results generated during the Phase I and II investigations additional monitor wells and soil samples may be required."

RESPONSE (RB)

17. Section 1.6 Phase IV Post-Baseline Environmental Monitoring

Appropriate narrative shall also be added to this section that states based upon findings and data generated from the previous phases of investigation, additional monitor wells and soil samples may be required.

RESPONSE (RB)

18. **Figures 1-1, 1-2, and 1-3**

- a. **These figures must be revised to incorporate all historic OB/OD units, which have been documented to exist at the site. At a minimum, the additional OB unit (located proximate to the shelter) must be included on the aerial drawings.**

RESPONSE (RB)

- b. **A key that describes the sample locations must be incorporated into the figures. The identification system detailed in section 3.7 of the baseline work plan should be used and reiterated on the figures for clarification purposes.**

RESPONSE (RB)

19. **Table 1-1 Baseline Monitoring Plan Open Burning/Open Detonation**

- a. **SW846 Method 7470A is not appropriate for the soil matrix. Method 7471A is the correct method for solid/soils matrices. Please revise this section to include the correct method.**

RESPONSE (TJ)

The analytical method for mercury will be changed from SW0846 7470A to 7471A.

- b. **For volatile organic analysis, soil samples must also be collected for low level analysis. There are two options for the collection of low-level soil samples. The first option is for the field samples to be field preserved with sodium bisulfate solution. The sampler must check the effervescence nature of the soils prior to adding the sample to the pre-preserved bottle.**

The second option is to use the Encore™ or equivalent field sampling device to collect the samples with the laboratory later preserving the samples within forty-eight (48) hours of receipt or analyzing the samples within forty-eight (48) hours. In addition, a separate vial must be collected for the moisture determination and screening by the laboratory. Encore™ or equivalent field sampling devices can also be used to collect the high level samples instead of preserving with methanol. For additional information, please refer to USEPA Method 5035.

RESPONSE (TJ)

Methanol preservation, which was originally required by Table 1-1, will be replaced with Encore sample collection. A requirement to analyze the samples within 48 hours or to preserve the EnCore™ samples within 48 hours of receipt by the laboratory will be included.

- c. **The table must be revised to include cyanide, ethylene dibromide, picric acid, and semivolatile organic compounds.**

RESPONSE (TJ)

Table 1-1 will be revised to include cyanide, picric acid and semivolatile organic compounds, as well as other chemicals identified in response to other comments. Ethylene dibromide is currently listed on Table 1-1 under its synonym, 1,2-dibromoethane.

- d. **Isobutyl alcohol must be analyzed using USEPA Method 8015B.**

RESPONSE (TJ)

Isobutyl alcohol is now scheduled for analysis by USEPA Method 8015B in Table 1-1.

- e. **Hexachloroethane, 2-picoline, nitrobenzene, n-nitroso-dibutylamine, -toluidine, pyridine, hexachlorobutadiene, and naphtalene must be analyzed by USEPA Method 8270C.**

RESPONSE (TJ)

Isobutyl alcohol will be scheduled for analysis by USEPA Method 8015B. Hexachloroethane, 2-picoline, nitrobenzene, n-nitroso-dibutylamine, o-toluidine, pyridine, hexachlorobutadiene, and naphthalene will be scheduled for analysis by USEPA Method 8270C in Table 1-1.

- f. **The table must be revised to include the requirements of USEPA Method 5035 regarding the amount of the sample and the methanol requirements. The method requires five (5) grams of soil to be added to ten (10) ml of methanol.**

RESPONSE (TJ)

Please see response to Comment 19.b.

- g. **The laboratory reporting and detection limits must be provided for compounds listed as "TBD" (To Be Determined).**

RESPONSE (TJ)

Laboratory detection and reporting limits will be provided in Table 1-1 for all chemicals.

- h. **The requirements for silver must be revised based on the earlier comment.**

RESPONSE (TJ)

Please see response to Comment 13.j.

20. Table 1-2 Baseline Monitoring Plan Groundwater Monitoring

- a. **Footnotes 5 and 6 are reversed and must be revised.**

RESPONSE (TJ)

Footnotes 5 and 6 on Table 1-2 will be reversed, as requested.

- b. **The table must be revised to include cyanide, ethylene dibromide, picric acid and semivolatile organic compounds.**

RESPONSE (TJ)

Table 1-2 will be revised to include cyanide, picric acid and semivolatile organic compounds, as well as other chemicals in response to other comments. Ethylene dibromide is currently listed on Table 1-2 under its synonym, 1,2-dibromoethane.

- c. **Isobutyl alcohol must be analyzed using USEPA Method 8015B.**

RESPONSE (TJ)

Isobutyl alcohol will be scheduled for analysis by USEPA Method 8015B in Table 1-2.

- d. **Hexachloroethane, 2-picoline, nitrobenzene, n-nitroso-dibutylyamine, o-toluidine, pyridine, hexachlorobutadiene, and naphthalene must be analyzed by USEPA Method 8270C.**

RESPONSE (TJ)

Hexachloroethane, 2-picoline, nitrobenzene, n-nitroso-dibutylyamine, o-toluidine, pyridine, hexachlorobutadiene, and naphthalene will be scheduled for analysis by USEPA Method 8270C in Table 1-2.

- e. **The laboratory reporting and detection limits must be provided for compounds listed as "TBD" (To be Determined).**

RESPONSE (TJ)

Laboratory detection and reporting limits will be provided in Table 1-2 for all chemicals.

21. Tables 1-4, 1-5, 1-6, 1-7, and 1-8

The tables must be revised to include the semivolatile organics.

RESPONSE (TJ)

Tables 1-4, 1-5, 1-6, 1-7, and 1-8 will be revised to include the semivolatile organics.

22. Table 1-6

Ambient field blanks are not part of the requirements of Method 5035.

RESPONSE (TJ)

It is noted that ambient field blanks are not required by Method 5035.

23. Table 2-1

The address and fax number for Kathleen Grimes should be corrected to:

**State of New Jersey
Department of Environmental Protection
DPFSR-BEMQA
Attn: Ms. Kathleen Grimes
P.O. Box 413
401 East State Street
Trenton, New Jersey 08625-0413
Fax: (609) 292-0848**

RESPONSE (TJ)

Please see response to Comment 13.h.i.

24. Section 3.3.4 Discrete Depth Subsurface Soil/Groundwater Sampling

This section must be revised to include semivolatile compounds and dioxin-furans.

RESPONSE (TJ)

Section 3.3.4 of the Baseline Environmental Monitoring Plan will be revised to include semivolatile compounds and dioxin-furans.

25. Section 3.4 Temporary Ground Water Monitoring Well Installation and Abandonment

The following narrative must be added to this section: “In accordance with NJDEP procedure, a temporary monitor well can only exist for 48 hours. If this time frame is exceeded, a permit must be secured for the well.”

RESPONSE (TJ)

The following narrative will be added to Section 3.4:

“In accordance with NJDEP procedure, a temporary monitor well can only exist for 48 hours. If this time frame is exceeded, a permit must be secured for the well.”

26. Section 3.5.2 Permanent Monitoring Well Development

The section states that, “...a surge block will be raised and lowered a minimum of five times along the length of the screen in order to loosen any sand or sediment that may be caught in the slots of the screen.” Since the monitor wells will be constructed with PVC risers and well screen, it may be inappropriate to surge the screen interval since it is possible to fracture the screen. It is suggested that the facility consider over-pumping of the well, coupled with surge block action within the well riser saturated zone only.

RESPONSE (TJ/JO)

The SOP governing surging a well (PVC or not) will require manual surging (rather than mechanical surging) to ensure that the well screen is not inadvertently fractured. The facility may also include an option for over-pumping of a well coupled with surge block action within the well riser saturated zone.

27. Section 3.5.3 Water-Level Measurements

This section must be revised to state that all monitor wells will be surveyed by a NJ land surveyor prior to collection of any synoptic water level measurement that will be used to generate ground water flow maps for the site.

RESPONSE (TJ/JO)

Section 3.5.3 of the Baseline Environmental Monitoring Plan will be revised to require that all monitoring wells will be surveyed by a NJ land surveyor prior. The timing of the surveying is not viewed to be critical, however, so surveying will be permitted either prior to or after synoptic water level measurements used to generate groundwater flow maps for the site.

28. Section 3.5.4 Permanent Monitoring Well Purging and Ground Water Sampling

Use of low-flow protocol to sample the monitor wells is proposed. An additional attachment or appendix must be provided that demonstrates that the facility fully understands and can implement the USEPA Low Flow sampling protocols and procedures. The USEPA Low Flow sampling protocols and procedures must also be referenced in this section of the document in addition to being included in an appendix.

RESPONSE (TJ/JO)

An SOP for low flow groundwater sampling will be provided in an appendix to the Baseline Environmental Monitoring Plan that demonstrates that the facility fully understands and can implement the USEPA Low Flow sampling protocols and procedures. The USEPA Low Flow sampling protocols and procedures will be referenced in this section of the document in addition to being included in the SOP.

29. Section 3.6 Borehole and Sample Logging

In addition to using the Unified classification as proposed by the contractor, the onsite geologist must log all borehole and sample locations using the Burmeister Soil Classification system.

RESPONSE (RB)

30. Section 3.9 Chain-of-Custody Documentation

This section must be revised to state that the laboratory must document the temperature of the sample shipping container upon receipt either on the external chain-of-custody form or in the laboratory logbook. If the temperature is recorded in a laboratory logbook, a copy of the logbook page must be provided as part of the analytical data package.

RESPONSE (TJ)

31. Section 3.10 Decontamination of Field Sampling Equipment

This section must state that all decontamination procedures for field, sampling and drilling equipment must be in accordance with the latest revision of the NJDEP Field Sampling Procedures manual.

RESPONSE (TJ/JO)

Section 3.10 of the Baseline Environmental Monitoring Plan will state that decontamination procedures for field, sampling and drilling equipment must be in accordance with the latest revision of the NJDEP Field Sampling Procedures manual.

32. Appendix A Non-SW 846 Analytical Procedures

- a. Provide a copy of the method for trinitroresorcinol.**

RESPONSE (TJ/JO)

A copy of the trinitroresorcinaol analytical method will be provided with the revised Baseline Environmental Monitoring Plan.

- b. Perchlorate Method**

- i. **Section 7.5.3 states that the units for soil samples are ug/l. The units must be ug/kg. Please revise this section to include the correct units and verify with the laboratory.**

RESPONSE (TJ)

Section 7.5.3 will be revised to change the soil results units from ug/l to ug/kg.

- ii. **Calibration blanks must be analyzed following every calibration verification check standard. Please provide the acceptance criteria for calibration blanks.**

RESPONSE (TJ)

Awaiting response from laboratory (APCL) on resolution of this comment.

- iii. **The continuing calibration verification (CCV) must be from a different source than the standards used for the calibration curve.**

RESPONSE (TJ)

Awaiting response from laboratory (APCL) on resolution of this comment.

- iv. **Please provide the Linear Calibration Range acceptance criteria including the initial determination, frequency of check, and the acceptability range of variation. In addition, the number of standards and blanks used to verify the linearity of the calibration must be provided.**

RESPONSE (TJ)

Linear Calibration Range acceptance criteria including the initial determination, frequency of check, and the acceptability range of variation will be provided. In addition, the number of standards and blanks used to verify the linearity of the calibration will be provided.

- v. **Please provide a revised Standard Operating Procedure (SOP) that details the actions that will occur when the Laboratory Control, Matrix Spike, and Matrix Spike Duplicate Samples are outside of the control limits. The spiking levels must also be provided.**

RESPONSE (TJ)

Awaiting response from laboratory (APCL) on resolution of this comment.

33. **Appendix C Field Operation Procedures**

- a. **Any SOPs used during the site investigation must meet the requirements of the NJDEP Field Sampling Procedures Manual, the NJAC 7:9D Well Regulations, and NJAC 7:26E, Technical Requirements for Site Remediation.**

RESPONSE (TJ)

All SOPs used during the site investigation will meet the requirements of the NJDEP Field Sampling Procedures Manual, the NJAC 7:9D Well Regulations, and NJAC 7:26E, Technical Requirements for Site Remediation.

- b. **SOPs 1-154 and 2-154**

- i. **The SOPs must be revised to include the current requirements of Method 5035 for the collection of the field preserved samples. The SOPs must address collection of the sample of low level analysis using the sodium bisulfate solution. If the facility plans to use Encores and equivalent devices for this project, the SOPs must address their use.**

RESPONSE (TJ)

The facility will use EnCore™ samplers for soil samples scheduled for VOC analyses. The sampling SOPs will address their use. Please see response to Comment 19.b.

- ii. **It is not recommended that bagged ice be used to cool samples during shipment due to leakage. Please provide an alternate method for cooling the samples during shipment.**

RESPONSE (TJ)

The concern about leakage of bagged ice during shipment of samples is noted. NWSE has used bagged ice many times without incident. In addition, chain of custody forms are placed into plastic bags to protect them from condensation and leakage. No change has been made in response to this comment.

- c. **SOP 6-154**

The SOP must include a copy of the external and internal chain-of-custody forms for each of the laboratories that will be used.

RESPONSE (TJ)

SOP 6-154, "SAMPLE CUSTODY AND DOCUMENTATION OF FIELD ACTIVITIES," is a procedure governing field activities related to sample custody and documentation of field activities. Inclusion of laboratory-specific chain of custody forms would be inappropriate in this SOP. No change has been made in response to this comment.