START

0030450

# ENGINEERING CHANGE NOTICE

Page 1 of 6

1. ECN 197979

Proj. ECN

| 2. ECN Category (mark one) | 3. Originator's Name, Organization, MSIN, and Telephone No. | 4. Date |
|---|---|---|
| Supplemental [X]<br>Direct Revision [ ]<br>Change ECN [ ]<br>Temporary [ ]<br>Standby [ ]<br>Supersedure [ ]<br>Cancel/Void [ ] | N.M. Naiknimbalkar, 100 Area Remedial Investigation, H6-02, 376-8739 | 08/13/93 |
| | 5. Project Title/No./Work Order No.<br>DOW for 100-DR-2 OU Vadose Drilling/Test Pits | 6. Bldg./Sys./Fac. No.<br>N/A |
| | 7. Impact Level<br>4 3 P 8/17/93 | |
| | 8. Document Numbers Changed by this ECN (includes sheet no. and rev.)<br>WHC-SD-EN-AP-139, Rev. 0 | 9. Related ECN No(s).<br>N/A |
| | 10. Related PO No.<br>N/A | |

| 11a. Modification Work | 11b. Work Package No. | 11c. Modification Work Complete | 11d. Restored to Original Condition (Temp. or Standby ECN only) |
|---|---|---|---|
| [ ] Yes (fill out Blk. 11b)<br>[X] No (NA Blks. 11b, 11c, 11d) | N/A | Cog. Engineer Signature & Date | N/A<br>Cog. Engineer Signature & Date |

12. Description of Change

See Continuation Sheets


| 13a. Justification (mark one) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Criteria Change | [ ] | Design Improvement | [ ] | Environmental | [X] | | |
| As-Found | [ ] | Facilitate Const. | [ ] | Const. Error/Omission | [ ] | Design Error/Omission | [ ] |

13b. Justification Details

Clarification of DOW content.

14. Distribution (include name, MSIN, and no. of copies)

| | | | |
|---|---|---|---|
| N. M. Naiknimbalkar | H6-02 | G. S. Corrigan | H4-16 |
| R. P. Henckel | H6-02 | W. S. Thompson | N3-05 |
| T. W. Spicer | N3-06 | C. D. Hayes | S3-90 |
| E. D. Goller | A5-19 | ~~EPIC (2)~~ | H6-08 |
| Ted Wooley, 7601 Clearwater Ave. Suite 102, Kennewick, WA 99336 | | EDMC (1) | |
| Central Files (2) | L8-04 | ERC | H6-07 |

RELEASE STAMP

OFFICIAL RELEASE BY WHC (11)

DATE AUG 17 1993

Station 22

A-7900-013-2 (06/92) GEF095

A-7900-013-1 (06/92)

9313026031 2

# ENGINEERING CHANGE NOTICE



1. ECN (use no. from pg. 1): 197979

| 15. Design Verification Required | 16. Cost Impact | | | | 17. Schedule Impact (days) | |
|---|---|---|---|---|---|---|
| | ENGINEERING | | CONSTRUCTION | | | |
| [] Yes | Additional | N/A $ | Additional | N/A $ | Improvement | N/A |
| [X] No | Savings | N/A $ | Savings | N/A $ | Delay | N/A |

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the effected document number in Block 19.

| | | | | | |
|---|---|---|---|---|---|
| SDD/DD | [] | Seismic/Stress Analysis | [] | Tank Calibration Manual | [] |
| Functional Design Criteria | [] | Stress/Design Report | [] | Health Physics Procedure | [] |
| Operating Specification | [] | Interface Control Drawing | [] | Spares Multiple Unit Listing | [] |
| Criticality Specification | [] | Calibration Procedure | [] | Test Procedures/Specification | [] |
| Conceptual Design Report | [] | Installation Procedure | [] | Component Index | [] |
| Equipment Spec. | [] | Maintenance Procedure | [] | ASME Coded Item | [] |
| Const. Spec. | [] | Engineering Procedure | [] | Human Factor Consideration | [] |
| Procurement Spec. | [] | Operating Instruction | [] | Computer Software | [] |
| Vendor Information | [] | Operating Procedure | [] | Electric Circuit Schedule | [] |
| OM Manual | [] | Operational Safety Requirement | [] | ICRS Procedure | [] |
| FSAR/SAR | [] | IEFD Drawing | [] | Process Control Manual/Plan | [] |
| Safety Equipment List | [] | Cell Arrangement Drawing | [] | Process Flow Chart | [] |
| Radiation Work Permit | [] | Essential Material Specification | [] | Purchase Requisition | [] |
| Environmental Impact Statement | [] | Fac. Proc. Samp. Schedule | [] | | [] |
| Environmental Report | [] | Inspection Plan | [] | | [] |
| Environmental Permit | [] | Inventory Adjustment Request | [] | | [] |

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

| Document Number/Revision | Document Number/Revision | Document Number Revision |
|---|---|---|
| | | |

20. Approvals

| Signature | Date | Signature | Date |
|---|---|---|---|
| OPERATIONS AND ENGINEERING | | ARCHITECT-ENGINEER | |
| Cog Engineer N. M. Naiknimbalkar | 8/13/93 | PE | |
| Cog. Mgr. R. P. Henckel | 8/16/93 | QA | |
| QA W.R. Thackaberry | 8.17.93 | Safety | |
| Safety | | Design | |
| Security | | Environ. | |
| Environ. | | Other | |
| Projects/Programs | | | |
| Tank Waste Remediation System | | | |
| Facilities Operations | | DEPARTMENT OF ENERGY | |
| Restoration & Remediation | | Signature or Letter No. | |
| Operations & Support Services | | | |
| IRM | | ADDITIONAL | |
| Other | | | |

The following changes are made through ECN 197979 to 100-DR-2 Description of Work (WHC-SD-N-AP-139, Rev. 0) for clarification purpose and ease of use for conducting field activities.

Page ii. Contents. Add Sections 5.1 Quality Control Samples and 5.2 Quality Control for Hexavalent Chromium under 5.0

Page 1. second para, line one. Change 100-DR-1 to 100-DR-2.

Page 1. item 1. 116-DR-3 (105-DR Storage Basin Trench)... Delete last sentence 'Physical samples will also be collected from this site'.

Page 1. Item 2. 116-DR-7 (105-DR Inkwell Crib)... Add 'Physical samples will also be collected from this site' at the end of paragraph.

Page 1. Item 3. Sodium Dichromate Tanker Car Offloading Facility.....change last line to say 'and samples will be screened for hexavalent chromium'.

Page 1. Last para. start paragraph with 'If field investigation detects radiation' Environmental Investigation....

Page 3. Add bullet. WHC-CM-7-8, Environmental Engineering and Geotechnology Function Procedures (WHC 1992)

Page 3. Delete bullet 8. Replace it with 'WHC-SD-EN-SAD-016, Safety Assessment for Environmental Investigation and Site Characterization'.

Page 3. Section 3.1 Soil Screening. Rewrite as follows:

All soils will be continuously screened for evidence of radionuclides and organics by the field geologist. Chromium will be field screened at 5 feet intervals (DOE-RL 1991, Section 5.1.1.5.2). Radionuclides will be screened per EII 3.4, "Field Screening" (WHC 1988a), using Ludlum (a trade name of Ludlum Measurements Inc.) 14c detector. Volatiles will be screened using an organic vapor monitor (OVM) consistent with the requirements of EII 3.2, "Health and Safety Monitoring Instruments" and EII 3.4, "Field Screening". The field geologist will record screening results in the borehole log per EII 9.1, "Geologic Logging" (WHC 1988a).

Prior to initiating drilling, the field geologist will determine a one time instrument background reading using the above instruments at the background site described in the 100-DR-1 work plan (DOE-RL 1991, section 5.1.2.3.2). This site (WHC 1993b) was chosen because previous surface radiation surveys have not indicated radiological contamination at the site. Instrument background will be measured on freshly disturbed surface soil, holding the

~~instruments <1 inch from the soil. The field geologist will~~ record the background levels in the borehole log per EII 9.1, "Geologic Logging" (WHC 1988a) prior to the start of drilling. The action level for radionuclides screening is twice background site readings; the action level for volatile organic screening is 5 ppm. Soils will be screened for hexavalent chromium. The field geologist will record the screening results in the borehole log per EII 9.1, "Geologic Logging" (WHC 1988a). The chromium screening shall be done for information purpose only; therefore there is no action level.

Page 4. Section 3.2. Rewrite as follows:

3.2 Sampling

Field screening will be utilized to aid in the selection of samples to submit for the analysis of chemical and radiological constituents. Geologic samples and samples for the analysis of physical properties will also be collected from nonradioactive soils. If there is insufficient material available for sampling, the priority for analysis is identified in Section 4. In all instances, where both physical property testing and analytical sampling are called for, the analytical sampling takes priority.

For the cable tool drilled borehole, chemical analysis and physical property samples shall be collected with a split spoon sampler in accordance with Appendix B, "Split-Spoon Sampling", of EII 5.2, "Soil and Sediment Sampling" (WHC 1988a). Geologic samples will be taken at 5-ft intervals and at major stratigraphic changes for the preparation of borehole logs, per EII 9.1, "Geologic Logging" (WHC 1988a). Geologic samples may be collected from the split spoon or the drive barrel from nonradioactive soil only. The field geologist shall archive the geologic samples per EII 5.7A, "Hanford Geotechnical Sample Library Control" (WHC 1988a).

Test pit sampling shall be conducted per Appendix I, "Test Pit/Trench Sampling" of EII 5.2, "Soil and Sediment Sampling" (WHC 1988a). The bucket of the backhoe will be decontaminated before each test pit excavation. Soils will be field screened for radionuclides, organics, and hexavalent chromium as described in section 3.1. The samples shall be taken from the bucket before the excavated material is placed on the ground. All sample material will be collected in order shown in section 4.0 A minimum of one and maximum of two analytical samples shall be collected from each test pit utilizing field screening criteria. The first time the material does not pass the screening criteria, a sample shall be collected. The geologist may collect archive samples from the bucket that are representative of 5 ft. intervals from nonradiological material only. Excavated test pit soil will be replaced in the test pit site after sampling is completed in the reverse order of the excavation and packed.

All samples shall be collected using Chain of Custody procedures as identified in EII 5.1, "Chain of Custody" (WHC 1988a). Samples shall be packaged and shipped per EII 5.11, "Sample Packaging and Shipment" (WHC 1988a). A field logbook will be used to document sample collection activities in accordance with EII 1.5, "Field Logbooks" (WHC 1988a).

Page 4. Section 3.3, First sentence revised to say:

'Up to five samples for physical property analysis (Section 5.1.1.5.2 of DOE-RL 1991) will be collected from 116-DR-7 (105-DR Inkwell Crib)'.

Page 5. Section 3.4, Analytical Sampling and Depths.

Revise second sentence to say: 'Soil cuttings will be continuously screened according to section 3.1 from surface to the final depth'.

Item 1. Add 'Maximum excavation depth for test pit will be 20 feet' at the end of paragraph.

Item 2. Revise text to say

'If cuttings pass the screening criteria, continue screening soils. Collect and analyze one sample at the maximum expected waste depth and continue sampling as close to 5 ft intervals as field conditions will allow until 2 consecutive samples pass the screening criteria or the maximum depth of the test pit is reached (approximately 20 feet)'.

Page 6. Section 4.0 Analysis. First sentence, second line. add 'and' after (TAL) constituents.

Also add following text to this paragraph.

'If organics are detected with field instruments, greater than 5 ppm, then samples will be analyzed for the target compound list (TCL) using EPA (1986) Level IV methods or SW 846 as applicable. Sample requirements for quantity, bottle type, and holding times will be identified in the Sampling Authorization Form (SAF)'.

Page 8, Revise/add order for sample containers under First and Second sentences as follows:

1. TAL
2. radioisotopes
3. anions
4. total activity

1. radioisotopes
2 TAL
3. anions
4. total activity

~~Second sentence, second line, change 'all five items' to 'all four~~ items',...

Page 9. Section 5.0 Quality Assurance/Quality Control Requirements.

Above first paragraph add a heading 'Section 5.1 Quality Control Samples'.

Revise items 3, 5 and 6 as follows:
3. add 'using silica sands' after Collect field blanks
5. add 'using silica sands' after Collect equipment blanks
6. add 'using silica sands' after..... (VOA) trip blank

Below item 6, add a heading 'Section 5.2 Quality Control for Hexavalent Chromium.

Page 10 . Section 8.0 References. Add following two references:

WHC, 1992, Environmental Engineering and Geotechnology Function Procedures, WHC-CM-7-8, Westinghouse Hanford Company, Richland, Washington.

WHC, 1992, Safety Assessment for Environmental Investigation and Site Characterization, WHC-SD-EN-SAD-016, Westinghouse Hanford Company, Richland, Washington.

Delete Reference: Taylor, W.E., 1991, 100 Area Low Hazard Characterization Activities Safety Assessment, WHC-SD-EN-SAD-002, Rev. 0. Westinghouse Hanford Company, Richland, Washington.

Date Received: 8/16/93

# INFORMATION RELEASE REQUEST

Reference: WHC-CM-3-4

Complete for all Types of Release

**Purpose**

- ☐ Speech or Presentation (Check only one suffix)
  - ☐ Full Paper
  - ☐ Summary
  - ☐ Abstract
  - ☐ Visual Aid
- ☐ Speakers Bureau
- ☐ Poster Session
- ☐ Videotape
- ☐ Reference
- ☒ Technical Report
- ☐ Thesis or Dissertation
- ☐ Manual
- ☐ Brochure/Flier
- ☐ Software/Database
- ☐ Controlled Document
- ☐ Other

ID Number (include revision, volume, etc.): ECN 197979

List attachments.: WHC-SD-EN-AP-139, Rev. 0

Date Release Required: August 16, 1993

Title: Description of Work for 100-DR-2 Operable Unit Vadose Drilling

Unclassified Category: UC- N/A

Impact Level: 4 3 8/17/93

New or novel (patentable) subject matter? [ ] No ☐Yes
If "Yes", has disclosure been submitted by WHC or other company?
[ ] No [ ] Yes Disclosure No(s).

Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions?
[ ] No [ ] Yes (Identify)

Copyrights? [ ] No [ ] Yes
If "Yes", has written permission been granted?
[ ] No [ ] Yes (Attach Permission)

Trademarks?
[ ] No [ ] Yes (Identify)

Complete for Speech or Presentation

Title of Conference or Meeting

Group or Society Sponsoring

Date(s) of Conference or Meeting

City/State

Will proceedings be published? [ ] Yes [ ] No
Will material be handed out? [ ] Yes [ ] No

Title of Journal: N/A

CHECKLIST FOR SIGNATORIES

| Review Required per WHC-CM-3-4 | Yes | No | Reviewer - Signature Indicates Approval: Name (printed) / Signature / Date |
|---|---|---|---|
| Classification/Unclassified Controlled Nuclear Information | [ ] | [X] | |
| Patent - General Counsel | [X] | [ ] | Per OGC memo 2/14/93 No review required 8/16/93 |
| Legal - General Counsel | [X] | [ ] | Per OGC memo 2/14/93 No review required 8/16/93 |
| Applied Technology/Export Controlled Information or International Program | [ ] | [X] | |
| WHC Program/Project | [ ] | [X] | |
| Communications | [ ] | [X] | |
| RL Program/Project | [ ] | [X] | |
| Publication Services | [ ] | [X] | |
| Other Program/Project | [ ] | [X] | |

Information conforms to all applicable requirements. The above information is certified to be correct.

| | Yes | No |
|---|---|---|
| References Available to Intended Audience | [X] | [ ] |
| Transmit to DOE-HQ/Office of Scientific and Technical Information | [ ] | [X] |

Author/Requestor (Printed/Signature) Date: N. M. Naiknimbalkar 8/13/93

Intended Audience: [ ] Internal [ ] Sponsor [X] External

Responsible Manager (Printed/Signature) Date: R. P. Henckel 8-16-93

INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP

Stamp is required before release. Release is contingent upon resolution of mandatory comments.

APPROVED FOR RELEASE OFFICIAL DOCUMENT NS Date 8/16/93

Date Cancelled | Date Disapproved

9313026031 8

BD-7600-062 (08/91) WEF074

Part 1