

START

0036454

ATTACHMENT

Control Number 64	100 NPL Agreement/Change Control Form Change <input type="checkbox"/> Agreement <input checked="" type="checkbox"/> Information <input type="checkbox"/> Operable Unit: <u>100-DR-1</u>	Date Submitted: 3/22/94 Date Approved:
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Document Number and Title: 100-DR-1 Treatability Scope and Objectives	Date Document Last Issued: NA
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Summary Description:

Signatures are for concurrence with the attached scope and objectives for the 100-DR-1 pilot scale soil washing test. The scope and objectives were discussed in a working meeting held 3/2/94.

A separate NPL Agreement/Change Control Form will be prepared to further address analytical levels and methods.

See also, NPL Agreement/ Change Control Form #60.

Justification and Impact of Change:

This agreement does not impact previous schedules or established TPA milestones.

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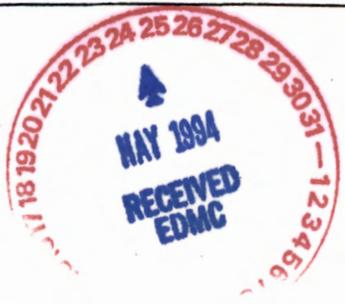
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Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3



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100-DR-1 PILOT-SCALE SOIL WASHING TREATABILITY TEST

1.0 REQUIREMENTS AND SCOPE

- 9413276.0255
- 1.1 A shake down test will be performed in which equipment is set up, operating experience is obtained, and operating parameters for the test are selected.
 - 1.2 Field Test #1 will consist of 2 parts: a. wet sieving with water only; and b. by wet sieving and attrition scrubbing with water only. Processes will include a trommel, screens, attrition scrubber, dewatering screens, a clarifier, and recycling of process water.
 - 1.3 Field Test #2 will be the same as Test #1 except a mixture of 0.5 M ammonium citrate and citric acid (electrolyte) will be added to the attrition scrubber to enhance removal of Cs-137 and inhibit re-adsorption.
 - 1.4 Field tests will process soil particles < 150 mm (6 in) dia. at 10 ton/hr. Time of processing and amount to be determined by field engineer. The system will operate during normal working hours. WHC estimates 200 tons of processed soil may be an adequate amount for Test #1 and Test #2 if the system works well. An undetermined amount of soil will be processed in shake-down tests. After the M-15-07-B milestone commitment is met, additional material from 100-DR-1 or other sites may be processed contingent on funding and resources.
 - 1.5 Target Performance Levels (TPL's) for the test will be accessible soil levels for radionuclides included in WHC-CM-7-5, Environmental Compliance Manual (1988) Table 6.2 for:
 ^{60}Co , ^{134}Cs , ^{137}Cs , ^{152}Eu , ^{154}Eu , ^{155}Eu , ^{90}Sr , ^{235}U , ^{238}U , $^{239/240}\text{Pu}$.

Results of the pilot scale soil washing test at 116-D-1B will evaluate system performance over a range of residuals down to levels listed in the previous revision of the WHC Environmental Compliance Manual conveyed in the Test Plan (DOE/RL-92-15, Rev. 0).

- 1.6 Due to schedule limitations, the prototype system tested will be made up of on-site EPA equipment used in 300 Area soil washing tests and equipment parts to be procured.
- 1.7 Off-site TCLP analyses will be conducted in Test #2 for fine soils < 0.25 mm and for 2 mm to 0.25 mm soils. In addition, radiochemical analyses of extract will be performed off-site.
- 1.8 In addition to field tests, water treatment recycle tests will be conducted in the laboratory using available sediment from the bench scale testing. These include:

Bench scale recycle batch processes where contaminant buildup and other process factors will be assessed. Water treatment will include flocculation and filtration.

Water treatment tests using process effluent from the field tests, and/or ion exchange water treatment.

- 1.9 Contaminated soils < 0.25 mm will be placed in appropriate containers and handle in accordance with the waste control plan. Remaining soils are to be returned to the site after the test is completed. Process effluent will be treated, if needed to meet purgewater acceptance standards, and evaporated or discharged.

2.0 OBJECTIVES AND MEASUREMENTS

- 2.1 Verify Chemical and radioactivity analyses of processed soils from the pilot scale treatability test are consistent with laboratory scale treatability test results.
- 2.2 Verify the percent reduction (by wt) that can be achieved for the soils processed is consistent with laboratory indications.

Sieve soils to determine the percent of soil particles in each size fraction before and after processing.

- 2.3 Assess water treatment requirements and recycling needs, including efficiency of treatment in removing contaminants from process effluent, and contaminant build up.

EPA Level II and V analyses will be conducted for feed water, effluent prior to treatment, and treated effluent samples.

- 2.4 Provide data on performance of the process equipment to allow scale-up to a full-scale system (eg. 100 ton/hr).

- o Determine operating utility requirements (chemical consumption, power, water etc.)
- o Record Settings of Equipment Controls
- o Determine Energy Input Requirements.
- o Determine Soil Water feed ratios, chemical ratios, pressure, flow rates, etc.

- 2.5 Assess emmissions and/or environmental impacts.

Record and report ALARA practices, air monitoring results, exposure levels, if any, detected by Health Physics Personnel.

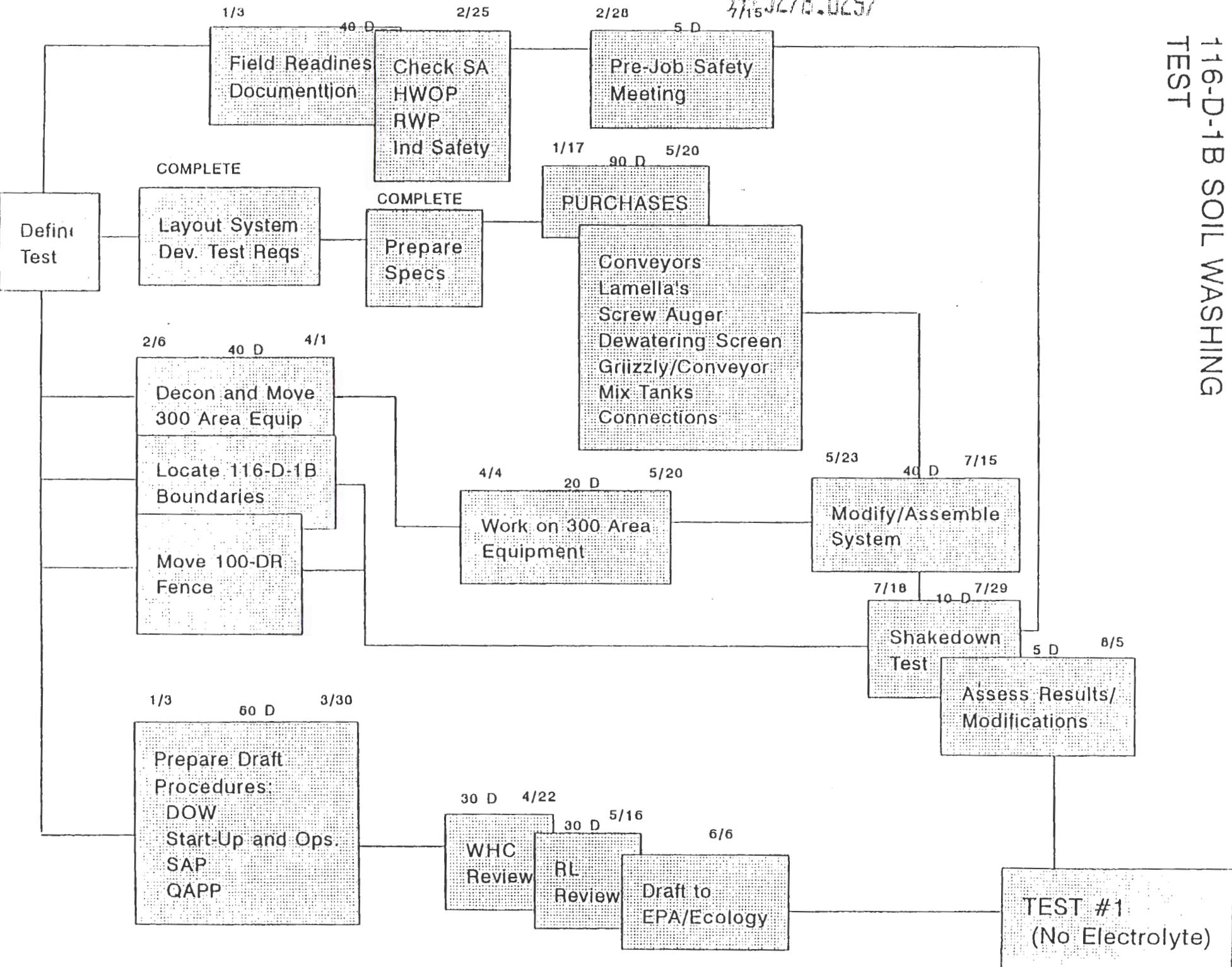
- 2.6 Use real time radiation monitors

Install sodium iodide detectors to monitor processed soils. Data will be used as needed to make field changes required to improve system performance, and to assess the viability of real time monitors for process control.

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116-D-1B SOIL WASHING TEST

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7/15



116-D-1B SOIL WASHING TEST

