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MEETING NOTES

TO: Distribution

DATE: December 21, 1993

FROM: Philip Nixon

MEMO #: SP307:122993:01

PROJECT #: Solar Pond IM/IRA

ATTENDANCE:

Randy Ogg, EG&G
Harlan Ainscough, CDH
Mark Austin, EG&G
Phil Nixon, ES
Richard Henry, ES
Andy Ledford, EG&G
John Haasbeek, ERM
Frazer Lockhart, DOE
Dave Ericson, EG&G
Steve Howard, DOE/SMS
Rick Wilkinson, ES
Peg Witherill, DOE
Arturo Duran, EPA
Ted Kearns, DOE/KMI
Ted Ball, PRC
Steve Paris, EG&G
Steve Cullen, G&M
Doug Weaver, ERM
Mike McMullen, G&M
Lee Pivonka, G&M
Cindy Gee, ES
Lorne Everett, G&M

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S. Stenseng
A. Fricke
R. Stegen
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T. Evans
B. Cropper
C. Montes
B. Wallace EG&G (Admin. Record) (2)
K. Ruger, EG&G
K. London, EG&G
Martin McBride
Helen Belencan, DOE
Steve Cook
Joe Schieffelin, CDH
Bob Segris, LATO
Steve Keith, EG&G
Alan MacGregor, ERM
Dave Myers, ES

SUBJECT: Weekly Status Meeting

R9-13-10.WPF

1) **Schedule Status**

Randy Ogg specified that there would be no team meeting between Christmas and the New Year. The next team meeting will be held on January 4, 1994.

Randy Ogg asked the team to clear their calendars in mid-February for the round table review. Team meetings will occur during the review period. It was discussed that comments pertaining to specific parts may be addressed at specific team meetings. EG&G will put a schedule together for the round table review period.

2) **Vadose Zone Presentations**

Dr. Lorne Everett presented an overview of vadose zone properties and flow phenomenon. Dr. Everett specified that the US EPA will likely modify the post closure regulations to require vadose zone monitoring in conjunction with groundwater monitoring to provide early warning of potential contaminant migration. This concept may be law by the end of 1994. Geraghty & Miller recommend that vadose zone monitoring be incorporated into the OU4 IM/IRA engineered cover design to avoid a costly retrofit project in the future.

Specific important points that Dr. Everett raised included:

a. It is important to reduce infiltration such that the vadose zone soil moisture content is less than the field capacity. Contaminant migration will not occur unless the soil moisture content exceeds the field capacity.

b. In unsaturated conditions investigated for Rocky Flats, water will not migrate from fine grained material to coarse grain material unless there is a significant lead buildup in the fine grained material. Coarse grain material can therefore act as an impedance to liquid migration. This is the design basis for a capillary break in the Hanford barrier design.

c. Neutron probes are the current state of the art vadose zone monitoring device. Neutron probes are becoming widely used and are currently being used at Yucca Mountain, UMTRA sites, and in the Hanford test barrier. These instruments are very precise and can be used to identify changes in the soil moisture content over time.

d. The control of soil moisture content can have a significant impact on the hydraulic conductivity. A small decrease in soil moisture can have a large decrease in the hydraulic conductivity.

Steve Cullen presented the G&M design criteria for the vadose zone monitoring. The criteria are as follows:

a. Be feasible to install, operate and sample with respect to the site hydrogeology and the selected engineered remedial alternative.

b. Provide data which can be used to identify and provide early warning of conditions conducive to penetration of water through the engineered barrier/cover system.

c. Provide data which can be used to identify the production and migration of leachate within the contaminated subsurface soils.

d. Provide data which can be used to identify the movement of water into the contaminated subsurface soils.

e. Provide data which can be used to identify movement of leachate out of the waste pile.

f. Provide adequate spatial coverage.

g. Provide adequate temporal coverage.

h. Provide data upon which to base a release response action.

i. Provide for remote and automatic monitoring of data.

j. Be integrated into the design and construction of the selected remedial alternative.

k. Incorporate monitoring techniques which are precise.

l. Incorporate planned redundancy.

m. Be cost effective to install and operate.

n. Incorporate proven technologies which have a record of performance for measuring, sampling, and analyzing soil and vadose zone monitoring parameters.

Randy Ogg requested that the team review the criteria and provide comments to G&M by December 30, 1993.

Steve Cullen indicated that vadose zone monitoring would provide an early warning that conditions may be conducive to contaminant migration; however, it would still need to be demonstrated that the groundwater would be impacted. G&M suggested that a statistical tolerance level be established to determine when the conditions are conducive to a groundwater impact.

Steve Cullen noted that the presence of infiltration into the cover might not result in a significant risk because the RFP soils have a high attenuation capacity due to negatively charged colloidal materials which will adsorb the positively charged contaminants.

Steve Cullen discussed different types of vadose zone monitoring instruments:

a. lysimeters

b. tensometers
c. capacitance probes
d. neutron probes
e. TDR probes

G&M is tentatively favoring the use of neutron probes for the specific conditions at the RFP.

Harlan Ainscough indicated that the use of vadose zone monitoring was not an acceptable substitution for an engineered cover. He also requested that a reliable system be selected so as to prevent false positive readings.

Frazer Lockhart inquired as to the required frequency of vadose zone monitoring. Dr. Everett responded that a baseline over all seasons would need to be established. However, with time there could be a geometric progression in the reduction of monitoring frequency.

Richard Henry provided results of the vadose zone investigations that were conducted as part of the RFI/RI. The following preliminary data were presented to summarize the results:

a. Guelph Permeameter results
   - alluvium hydraulic conductivity 1.0×10^{-4} to 1.0×10^{-6} cm/sec
   - bedrock hydraulic conductivity 1.0×10^{-3} to 1.0×10^{-10} cm/sec

b. BAT testing

   - alluvium hydraulic conductivity 1.0×10^{-6} to 1.0×10^{-10} cm/sec
   - bedrock hydraulic conductivity 1.0×10^{-7} to 1.0×10^{-10} cm/sec

Richard pointed out that with a small change in moisture content, the unsaturated hydraulic conductivity decreases exponentially. The data suggests that the unsaturated hydraulic conductivity values are low in the vadose zone and water moves slowly in this region. In addition, the soils have a high cation exchange capacity which indicates that the contaminants have a high potential to be adsorbed.

Contamination beneath the ponds may result from:

a. Groundwater contamination from other upgradient sources
b. Past releases from the SEPs due to a liquid head driving liquid through the liners (or original clay liner when the pH was low).
c. Fractures or preferential migration pathways in the vadose zone.

The vadose zone may be a barrier to the migration of contamination under present climatic conditions; however, it is also a potential source of contamination if the moisture content increases such that the permeability is caused to increase.

3.) **Phase II Workplan**

Randy Ogg specified that ES had been awarded the Phase II work for OU4 groundwater investigation. The procurement cycle took longer than originally anticipated and the tasks to prepare the workplan are slightly behind schedule. Therefore, ES has been tasked to focus their emphasis on:

a. Existing data review.
b. Identification of data deficiencies.
c. Preparation of the workplan.

Randy Ogg specified that EG&G has adequate environmental in the assessment data, and that little or no more sampling would be required for the environmental evaluation section. Harlan Ainscough agreed with this position.

The Phase II workplan may be submitted during the end of the round table review. The team agreed that this would be acceptable.

4.) **Investigative Derived Material**

OU4 has between 170 and 200 drums of investigative derived material from the RFI/RI program. EG&G is in the process of performing a hazardous waste determination for the drums. Randy Ogg recommended that this material be consolidated under the engineered cover in that it is probably less contaminated than the contaminated media from the North Hillside.

Harlan Ainscough indicated that this suggested approach seemed logical as long as the EPA and CDH IDM guidance was not violated.

CDH will need to push the change to interim status for the 750 pad through the permit preparation phase.

5.) **Engineered Cover Performance Assessment**

Richard Henry presented the proposed approach that ES would implement to model the performance of the engineered cover. The performance assessment will include:

a. infiltration assessment
b. vadose zone leaching assessment
c. erosion assessment
   - wind
   - runoff

The models that proposed include:

a. HELP 3.0 - US EPA code for infiltration assessment.
b. VLEACH 1.1 - USEPA code for vadose zone transport

c. MYGRT 2.0 - EPRI code for groundwater impact.

Richard stated that these models are widely used and that 2 are public domain. **Harlan Ainscough will show these proposed codes to the CDH wastewater division to confirm their use.**

ES will use these models and provide the input data to the team for concurrence.

It was discussed that the HELP model may show little or no infiltration to the waste zone. In this scenario the V Leach model would not be required.

Frazer Lockhart indicated that OU3 had performed wind tunnel experiments to assess wind erosion at RFP. This information may be helpful for the engineered cover design.

6.) Contents of Conceptual Design

Phil Nixon presented a final Contaminant of Concern (COC) Table. The table is a summary table that culminates the most important information from the previously submitted PCOC, and PRG tables. This summary table will be included in the IM/IRA. All of the contaminants on the table will be mapped in the RFI/RI chapter of the IM/IRA.

Phil Nixon presented preliminary ES design concepts for the engineered cover. The closure strategy consists of:

a. Consolidating contaminated media from the area of the SEP berms to the seep line (north Hillside) into Pond 207B-South.
b. The SEP berms will be knocked onto the liners and pushed towards the south (if possible) to establish a grade that reduces the amount of material that needs to be used to buildup the north Hillside.
c. Construction of an engineered barrier.

ES has two engineered cover concepts that will be initially assessed by the selected models and modified as necessary to achieve the design goals.

The first concept marries the concepts of the Hanford barrier with the Hakonson concepts. This design would utilize an asphalt impermeable barrier under a capillary break and vegetation support layer. ES is considering a thin layer of dry fine material (clay) on top of the asphalt liner as a self-healing mechanism if the asphalt were to crack. If the asphalt cracked, the fine material should fill the voids. If water ever penetrated the capillary break, the clay would retain the liquid and expand to fill the cracked asphalt.

The second concept utilizes strictly the Hakonson principles where the asphalt barrier would be deleted and the cover system would consist of a capillary break covered by natural soils that support vegetation. Evapotranspiration is the method of infiltration prevention.

Frazer Lockhart indicated that the second concept may not meet the RCRA requirements.

It was explained that the conceptual level first run analysis would begin with three separate covers, one over the "C" Pond, one over the "A" Pond and one covering all three "B" Ponds. The reason for three separate covers is to minimize the surface drainage areas to reduce the anticipated erosion over the 1,000 year design period. Reducing the surface area draining to any one drainage path will lower the flow and therefore result in less surface sediment migration (erosion).

Sandy Stenseng explained that the 3 separate cover theory was based on the assumption that there would be no contaminated material remaining between the ponds which would require a full cover system, and that there may be utilities underlying these areas that may need to be accessed in the future. It would be feasible to breach topsoil, filter layers, biotic barriers and drainage materials to access and repair underlying utilities; however to breach any hydraulic barriers would probably cause concern as to the long-term integrity of the covers since it is not always possible to repair liners or hydraulic barriers with an impermeable bond that will avoid future drainage paths. Sandy explained that in the event that the areas between the berms require a full cover system, the entire pond area would, in essence, be covered by one continuous cover system with differing slopes and drainage paths. All components of the cover system would be integrated (uninterrupted) over the entire 5-pond area and the top slopes and interior slopes will be designed to minimize drainage pathway lengths. At present it is anticipated that there will be a swale between the C pond and the A pond and another between the A pond and the B ponds. The design intent at this point is to divert the surface and intercap flows to several different drainage paths to keep the flows and velocities as low as possible. This would reduce erosion due to sediment migration, particularly in the event of a 1,000-year design life. Sandy also brought up the issue that perimeter swales, berms and grouted riprap chutes may be incorporated into the surface water control system to handle surface flows in a manner that would reduce runon into the cover areas and divert runoff in a controlled manner to avoid damage from water erosion. It was also explained that in the event of a 1,000-year life criteria the toe drain system would probably utilize a gravel trench drain system and would not use perforated pvc pipe.

Philip Nixon, Project Manager

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OPERABLE UNIT 4/SOLAR EVAPORATION PONDS

JANUARY 4, 1994

AGENDA

CONCEPTUAL DESIGN UPDATE/STATUS-ES	8:00-9:30
BREAK	9:30-9:45
HELP MODEL DATA/CRITERIA	9:45-10:30
PHASE II RFI/RI WORK PLAN ANNOTATED OUTLINE-ES	10:30-10:45
POST CLOSURE MONITORING AND MAINTENANCE PLAN ANNOTATED OUTLINE-ERM/G&M	10:45-11:00
OPEN ISSUES	11:00-11:30

Attachment 2
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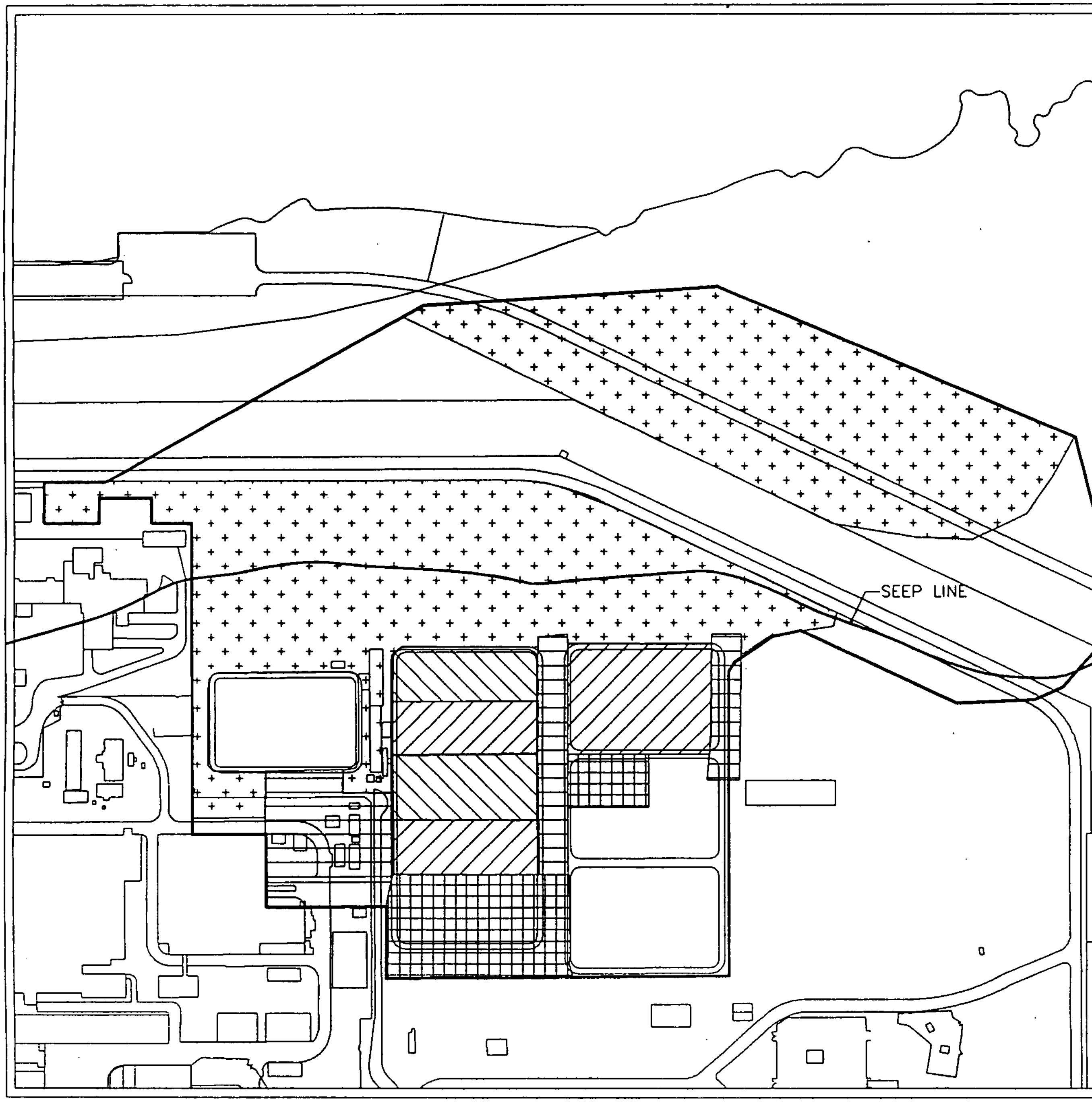
REVIEW DRAFT



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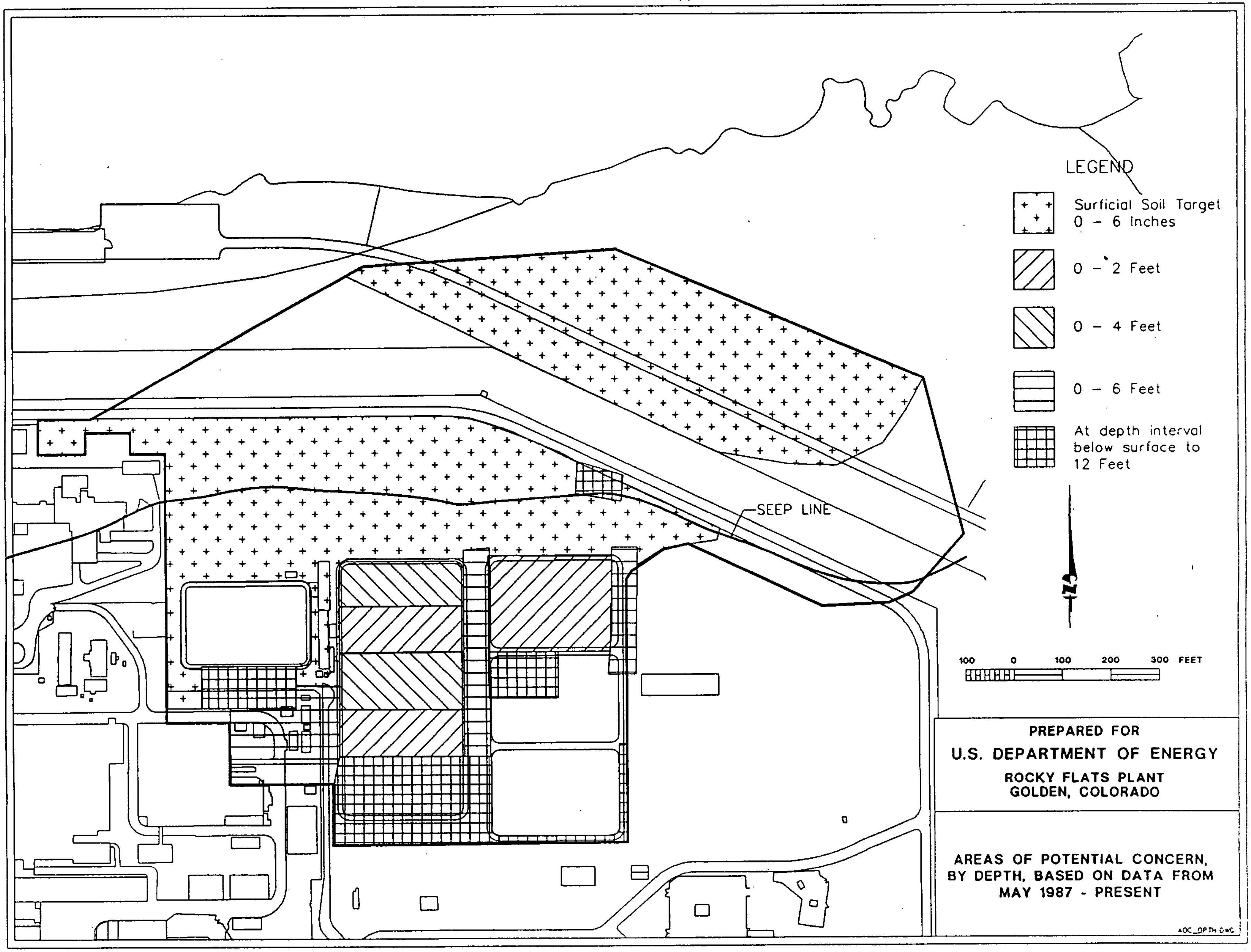
GOLDEN, COLORADO

AREA OF POTENTIAL CONCERN, BY DEPTH, BASED ON PHASE I RFI/RI DATA ONLY

REVIEW DRAFT



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REVIEW DRAFT

Table X.3. Summary of Potential Areas of Concern (3" – 12')

Identifies the location and depth at which a specific COC exceeds the projected long–term target concentration level for vadose soils; data from May 1987 – April 1993. Correlated with recent Phase I RFI/RI data as of December 1993.

Contaminant of Concern	P207589 (depth, ft.)	P208889 (depth, ft.)	P210189 (depth, ft.)	SP0387 (depth, ft.)	SP1087 (depth, ft.)	3787 (depth, ft.*)	3887 (depth, ft.)	3987 (depth, ft.)	41593 (depth, ft.)	41693 (depth, ft.)	41793 (depth, ft.)	42193 (depth, ft.)	42493 (depth, ft.)	43393 (depth, ft.)	43593 (depth, ft.)	43693 (depth, ft.)	43793 (depth, ft.)
Americium–241	--	--	--	--	--	--	--	--	0 – 2	0 – 5	0 – 5	--	0 – 2	--	1 – 6	0 – 2	0 – 5
Plutonium–239/240	--	--	--	--	0 – 1.8	--	--	--	--	0 – 5	0 – 5	--	--	--	1 – 6	--	0 – 5
Uranium–235	--	--	3 – 9	--	--	--	--	--	0 – 4	0 – 5	--	0 – 2	0 – 2	--	--	--	0 – 5
Barium	--	3.5 – 9.5	--	--	--	--	--	--	--	--	--	--	--	--	--	10 – 13	--
Cadmium	--	--	--	--	--	--	--	--	--	--	--	--	0 – 4	--	--	--	--
Chromium	--	--	--	--	--	--	--	--	0 – 2	--	--	--	--	--	--	--	--
Mercury	0 – 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6–dinitrotoluene	--	--	--	--	--	5, 11 – 12.3	9.5 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
Bis(2–ethylhexyl)phthalate	--	--	--	2 – 3.5	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	0 – 2	--	--	--
Hexachlorobenzene	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
Indeno(1,2,3–cd)pyrene	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
N–nitrosodipropylamine	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
N–nitrosodiphenylamine	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--
Pentachlorophenol	--	--	--	--	--	5, 11 – 12.3	0 – 10.9	2 – 14	--	--	--	--	--	--	--	--	--

*Note that COCs exceed target long–term concentration at two discrete depths, 5 feet bgs and 11 – 12.3 feet bgs.

Contaminant of Concern	46593 (depth, ft.)	46693 (depth, ft.)	46793 (depth, ft.)	46993 (depth, ft.)
Americium–241	0 – 0.7	0 – 0.5	0 – 0.5	
Plutonium–239/240	0 – 0.7	0 – 0.5	0 – 0.5	
Uranium–235	0 – 0.7	0 – 2	0 – 2	0–4, 5.5–7
Barium	--	--	--	--
Cadmium	--	--	--	--
Chromium	--	--	--	--
Mercury	--	--	--	--
2,6–dinitrotoluene	--	--	--	--
Benzo(a)anthracene	--	--	--	--
Benzo(a)pyrene	--	--	--	--
Benzo(b)fluoranthene	--	--	--	--
Benzo(k)fluoranthene	--	--	--	--
Bis(2–ethylhexyl)phthalate	--	--	--	--
Hexachlorobenzene	--	--	--	--
Indeno(1,2,3–cd)pyrene	--	--	--	--
N–nitrosodipropylamine	--	--	--	--
N–nitrosodiphenylamine	--	--	--	--
Pentachlorophenol	--	--	--	--

Attachment 2
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Note: updating borehole locations as of 1/4/93

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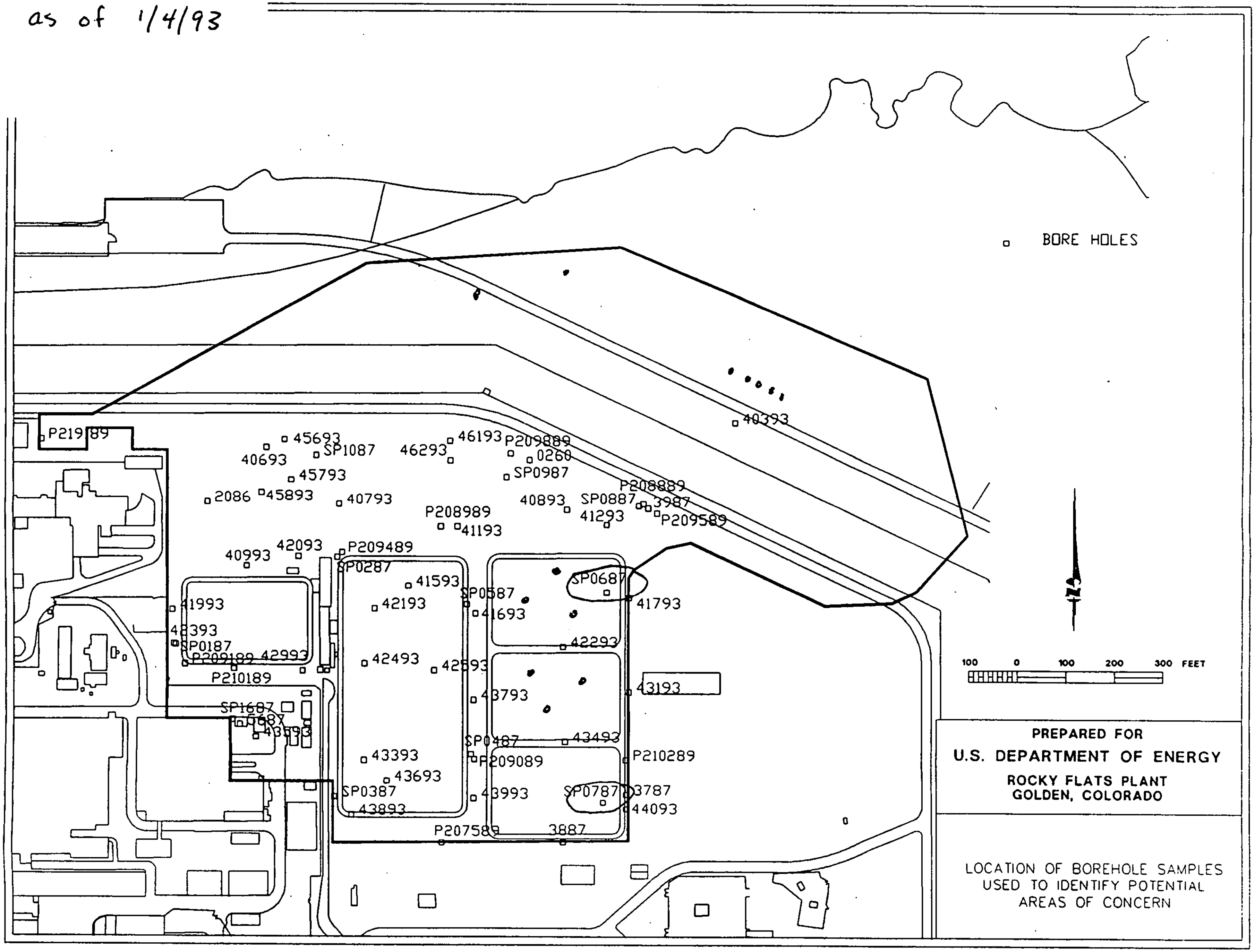

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LOCATION OF BOREHOLE SAMPLES USED TO IDENTIFY POTENTIAL AREAS OF CONCERN

Attachment 2
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Attachment 2
SR307:122993:01
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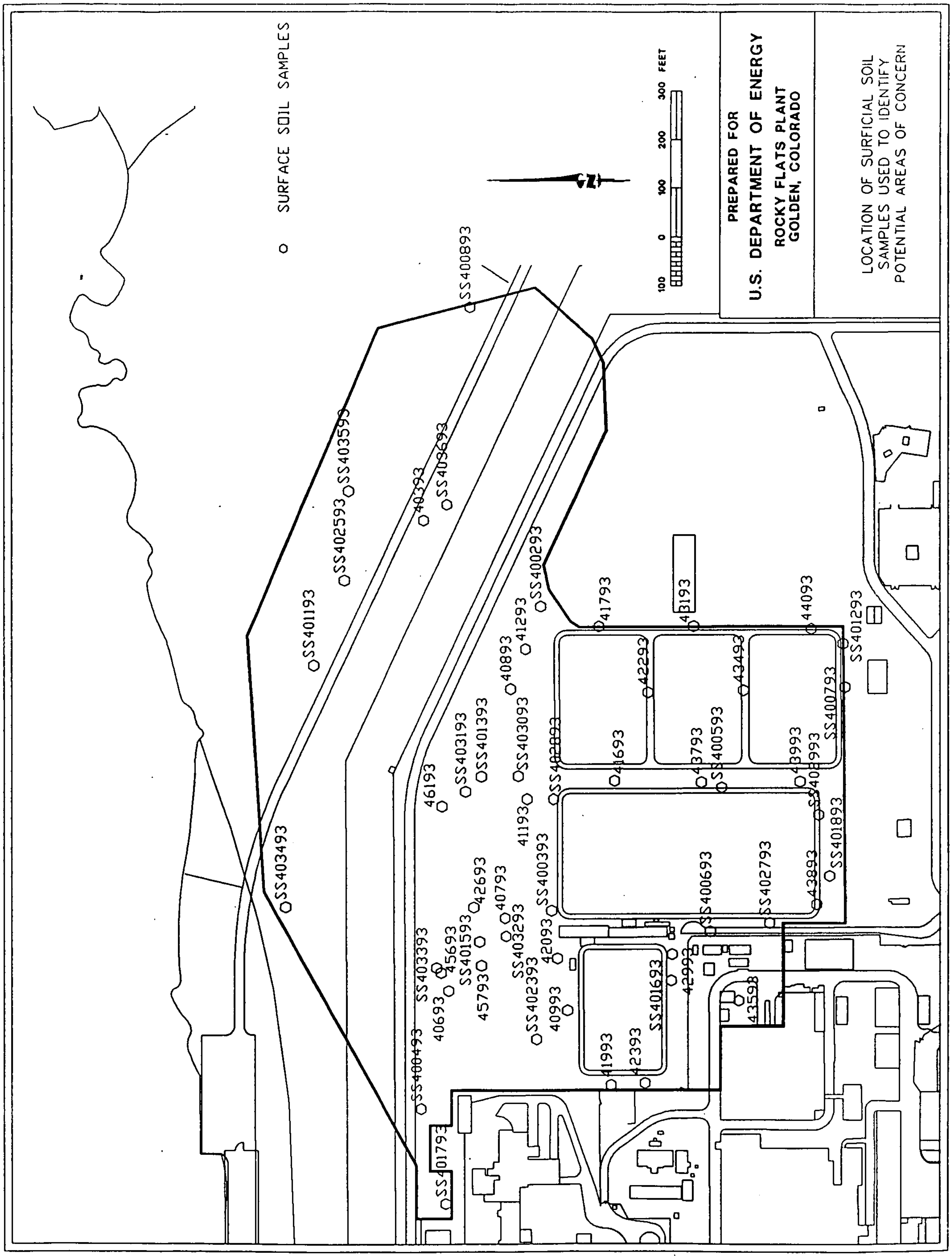
REVIEW DRAFT



REVIEW DRAFT

Table x.x Contaminants of Concern for OU4 IM/IRA
Note: All Calculations are Based on OU4 Data from July 1987 to May 1993

NOTE: * = analyte/max. value only measured above reported detection limit during pre-Phase I RFI/RI sampling programs.

Contaminant of Concern	Surficial Soil (0 - 3") OU4 95% UCL (All Data) (1)	Surficial Soil Max Value (All Data) (2)	Surficial Soil X+2S (Bckgrnd) (3)	Surficial Soil PRG (Future Resident) (4)	Surficial Soil Target Level (5)	Surficial Soil Selection Criteria (6)	Vadose Soil (3" - 12') OU4 95% UCL (All Data) (1)	Vadose Soil Max Value (All Data) (2)	Vadose Soil X+2S (Bckgrnd) (3)	Vadose Soil PRG (Construction Worker) (7)	Vadose Soil Target Level (5)	Vadose Soil Selection Criteria (6)
Carcinogens												
Metals												
Beryllium (mg/kg)	1.4	9.6	1.05	0.0148	1.05	Background				Not a COC for Vadose Soil		
Radionuclides												
Americium-241 (pCi/g)	10.8	110	0.996	0.34	0.996	Background	0.88	6.1	0.01	2.06	2.06	PRG
Plutonium-239/240 (pCi/g)	9.07	17	0.12	0.492	0.492	PRG	3.25	25	0.01	2.51	2.51	PRG
Uranium-235 (pCi/g)	0.18	0.53	1.76	0.0247	1.76	Background	0.2	0.87	0.07	0.287	0.287	PRG
Semi-Volatile Organics												
1,4-dichlorobenzene (ug/kg)	400	400	--	117	117	PRG				Not a COC for Vadose Soil		
2,6-dinitrotoluene (ug/kg)				Not a COC for Surficial Soil			330*	330*	--	230	230	PRG - Data source pre-Phase I RFI/RI(*)
Benzo(a)anthracene (ug/kg)	187.77	840	--	0.577	0.577	PRG	330*	330*	--	20.6	20.6	PRG - Data source pre-Phase I RFI/RI(*)
Benzo(a)pyrene (ug/kg)	212.78	900	--	0.183	0.183	PRG	330*	330*	--	6.43	6.43	PRG - Data source pre-Phase I RFI/RI(*)
Benzo(b)fluoranthene (ug/kg)	303.61	1,400	--	0.833	0.833	PRG	330*	330*	--	29.2	29.2	PRG - Data source pre-Phase I RFI/RI(*)
Benzo(k)fluoranthene (ug/kg)	351.11	1,500	--	8.33	8.33	PRG	330*	330*	--	292	292	PRG - Data source pre-Phase I RFI/RI(*)
Bis(2-ethylhexyl)phthalate (ug/kg)	660.88	24,000	--	105	105	PRG	254.6	4,600*	--	3,420	3,420	Possible Hot Spots - Data source pre-Phase I RFI/RI(*)
Chrysene (ug/kg)	212.83	950	--	57.2	57.2	PRG				Not a COC for Vadose Soil		
Hexachlorobenzene (ug/kg)*				Not a COC for Surfical Soil			330*	330*	--	13.3	13.3	PRG - Data source pre-Phase I RFI/RI(*)
Indeno(1,2,3-cd)pyrene (ug/kg)*				Not a COC for Surfical Soil			330*	330*	--	214	214	PRG - Data source pre-Phase I RFI/RI(*)
N-nitrosodipropylamine (ug/kg)*				Not a COC for Surfical Soil			330*	330*	--	3.05	3.05	PRG - Data source pre-Phase I RFI/RI(*)
Pentachlorophenol (ug/kg)*				Not a COC for Surfical Soil			1,600*	1,600*	--	682	682	PRG - Data source pre-Phase I RFI/RI(*)
Pesticides												
Arochlor-1254 (ug/kg)	11,900	11,900	--	0.173	0.173	PRG				Not a COC for Vadose Soil		
Noncarcinogens												
Metals												
Barium (mg/kg)				Not a COC for Surfical Soil			160.1	11,600*	58	4,190	4,190	Possible Hot Spots - Data source pre-Phase Phase I RFI/RI(*)
Cadmium (mg/kg)	29.9	380	0.99	4.77	4.77	PRG	18.3	550	550	150	150	PRG - Possible Hot Spots
Chromium (VI) (mg/kg)	20.4	48.4	15.4	23.8	23.8	Possible Hot Spots	18.5	780.5	19.1	752	752	PRG - Possible Hot Spots
Mercury (mg/kg)	0.19	1.8	0.08	0.106	0.106	PRG	0.34	10.8*	1.88	8	8	PRG - Possible Hot Spots
Nickel (mg/kg)	13.4	180	21.3	59.5	59.5	Possible Hot Spots				Not a COC for Vadose Soil		
Semi-Volatile Organics												
Bis(2-ethylhexyl)phthalate (ug/kg)	660.88	24,000	--	5,960	5,960	Possible Hot Spots				Not a COC for Vadose Soil		
Pesticides												
Arochlor-1254 (ug/kg)	11,900	11,900	--	75.6	75.6					Not a COC for Vadose Soil		

1. Calculated 95% upper confidence limit on the arithmetic mean using both pre-Phase I RFI/RI and Phase I RFI/RI data except as discussed in text; note that when the data could not be fit to a normal or lognormal distribution, the 95% upper tolerance limit OR the reported maximum value was used as the 95% UCL value.
2. Reported maximum value using both pre-Phase I RFI/RI data except as discussed in text.
3. Calculated value equal to the arithmetic mean plus two times the standard deviation on background data (see text for details).
4. Calculated risk-based preliminary remediation goal for the future resident exposure scenario (comparison criteria).
5. Target concentration used to define analyte as contaminant of concern.
6. Details on selection criteria (e.g., target level source, hot spot potential).
7. Calculated risk-based preliminary remediation goal for the construction worker exposure scenario (comparison criteria).

Attachment 3
SP307:12393.01
page 6 of 7

REVIEW DRAFT

Table x.x (continued, page 2). Contaminants of Concern for OU4 IM/IRA
Note: Remaining analytes have been classified as COCs in the absence of toxicity data to be used to calculate preliminary remediation goals; all data based on OU4 data from May 1987 to July 1993

NOTE: * = analyte/max. value only measured above reported detection limit during pre-Phase I RFI/RI sampling programs.

Contaminant of Concern	Surficial Soils (0 - 3") Freq of Detects (8)	Surficial Soils (0 - 3") Range of OU4 Detect Limits (9)	Surficial Soils (0 - 3") Range of OU4 Detected Conc. (10)	Surficial Soils (0 - 3") Selection Criteria (11)	Vadose Soil (3" - 12') Freq of Detects (8)	Vadose Soil (3" - 12') Range of OU4 Detect Limits (9)	Vadose Soil (3" - 12') Range of OU4 Detected Conc. (10)	Vadose Soil (3" - 12') Selection (11)
Radionuclides								
Tritium (pCi/ml)	14/39	0 - 4.1	0.04 - 1.3	No toxicity data	133/170	0 - 0.59	0.11 - 62	No toxicity data
Organics								
1,1,1-trichloroethane (ug/kg)	Not a COC for Surficial Soil				20/171	0 - 5	6 - 29	No toxicity data
2-hexanone (ug/kg)	Not a COC for Surficial Soil				21/161	0 - 10	11 - 58	No toxicity data
Phenanthrene (ug/kg)	11/171	370 - 600	470 - 1,200	No toxicity data	8/35	0	330*	No toxicity data - Data source pre-Phase I RFI/RI(*)
1,2-dichloropropane (ug/kg)	Not a COC for Surfical Soil				20/171	0 - 5	6 - 29	No toxicity data
1,4-dichlorobenzene (ug/kg)	1/4	330	400	No toxicity data	8/35	0	330*	No toxicity data - Data source pre-Phase I RFI/RI(*)
Chloroethane (ug/kg)	Not a COC for Surfical Soil				21/167	0 - 10	11 - 58	No toxicity data

8. Frequency of detection indicates the frequency with which the analyte was measured above the reported detection limit.
9. Range of reported chemical-specific detection limits in data for OU4.
10. Range of measured concentrations exceeding the reported, corresponding detection limit.
11. Details on selection criteria (i.e., lack of toxicity data)

COCs if OU4 conc. > Calc. PRG, or if chem. detected & no toxicity data is available (seeJG/LB) 03-Jan-94

Attachment 2
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