

PHOTOGRAPHIC RECORD

OU1 Site Inspection

Photo No. 1

View Direction of Photo:
North towards Main Security Access Point

Date: 12/2/10

Description:
The OU1 treatment system (IGWTP) is located within a completely enclosed and secured industrial facility (On Semiconductor). This is the site security main facility entrance.



Photo No. 2

View Direction of Photo:
West from Main Parking Lot

Date: 12/2/10

Description:
ON Semiconductor site security walls showing the facility behind the security wall.



PHOTOGRAPHIC RECORD

OU1 Site Inspection

Photo No. 3

View Direction of Photo:
South from McDowell along
50th Street

Date: 12/2/10

Description:
Site security fencing showing
northern fence gate which is
kept closed unless opened
from the inside of the facility.



Photo No. 4

View Direction of Photo:
North from Roosevelt along
50th Street

Date: 12/2/10

Description:
Site security fencing along the
southern perimeter of the
property.



PHOTOGRAPHIC RECORD

OU1 Site Inspection

Photo No. 5
View Direction of Photo:
Looking East in Courtyard
Date: 12/2/10
Description:
Courtyard Extraction Wells
DM301 and DM302.



Photo No. 6
View Direction of Photo:
East
Date: 12/2/10
Description:
DM301 Wellhead.



PHOTOGRAPHIC RECORD

OU1 Site Inspection

Photo No. 7

View Direction of Photo:
Into Wellhead

Date: 12/2/10

Description:
Southwest Parking Lot
Extraction Wellhead.



Photo No. 8

View Direction of Photo:
Southwest from inside SWPL
compound

Date: 12/2/10

Description:
SWPL Parking Lot Extraction
Wells.



PHOTOGRAPHIC RECORD

OU1 Site Inspection

Photo No. 9
View Direction of Photo: North from inside SWPL Compound
Date: 12/2/10
Description: SWPL Extraction Well piping, sampling ports, and valve vault.



Photo No. 10
View Direction of Photo: West at bedrock pilot test well
Date: 12/2/10
Description: Monitoring well used during testing.



Photo No. 11

View Direction of Photo:
Southwest at the Old Crosscut Canal Motor Control Building

Date: 12/2/10

Description:
Old Crosscut Canal Motor Control building exterior with security fence.

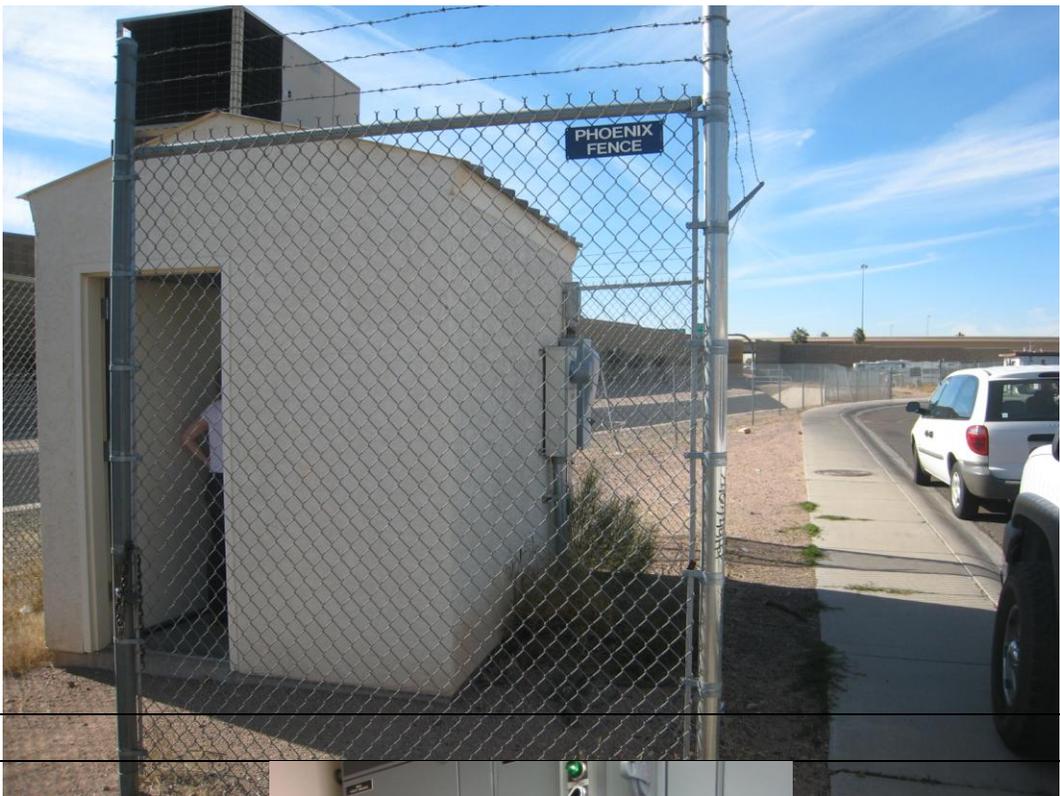
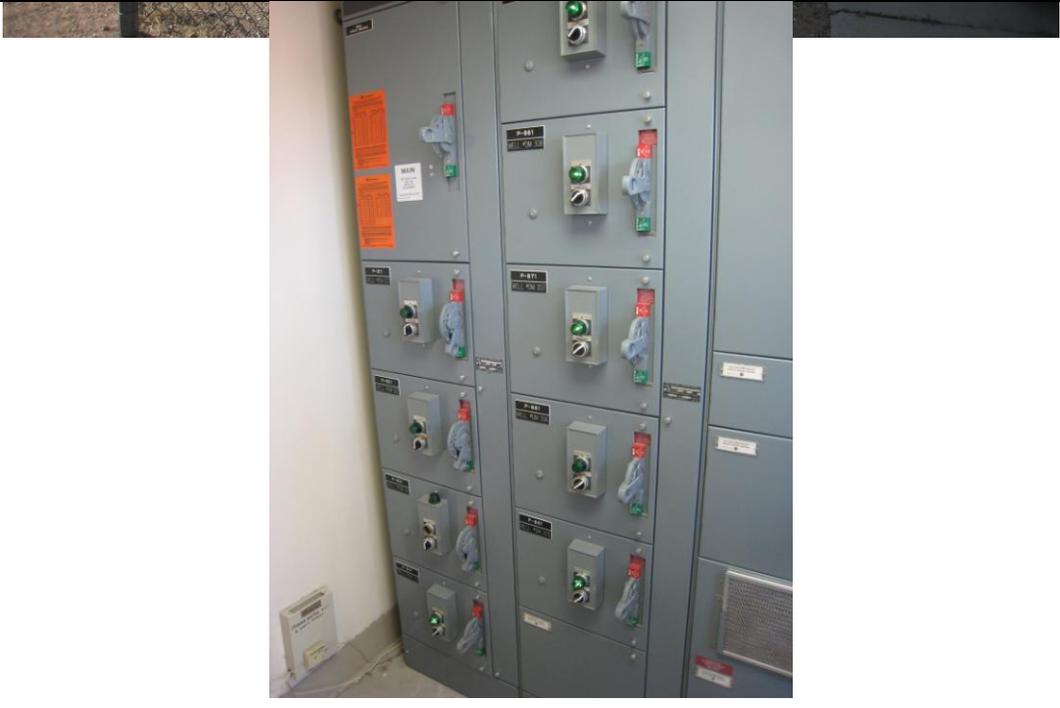


Photo No. 12

View Direction of Photo:
Northwest inside OCC Motor Control Building

Date: 12/2/10

Description:
Well Control panels for each of the OCC Extraction Wells for OU1.



PHOTOGRAPHIC RECORD

OU1 Site Inspection

Photo No. 13
View Direction of Photo: Looking down on an OCC Wellhead
Date: 12/2/10
Description: OCC extraction well vault cover, pad, and lock.



Photo No. 14
View Direction of Photo: Looking down into an OCC extraction well
Date: 12/2/10
Description: Well vault for an OCC extraction well shows wellhead, discharge piping, flowmeter, and electrical boxes for well power and transducer.



Photo No. 15

View Direction of Photo:
South Towards IGWTP Control Building

Date: 12/2/10

Description:
IGWTP control building, treatment plant behind, and security fencing in front.



Photo No. 16

View Direction of Photo:
Southeast overview of the treatment plant

Date: 12/2/10

Description:
Treatment plant operational tanks and piping.



Photo No. 17
View Direction of Photo: North towards IGWTP compound
Date: 12/2/10
Description: Inlet water equalization tanks with associated inlet and outlet piping.



Photo No. 18
View Direction of Photo: Northwest into IGWTP Secondary Containment Structure with Sump
Date: 12/2/10
Description: IGWTP secondary containment structure (sump is located at low end of this structure) for stormwater and treatment system overflow water.



Photo No. 19

View Direction of Photo:
Southeast into pump pit

Date: 12/2/10

Description:
Transfer pumps for transfer of untreated water from the equalization tanks to the first air stripping vessel. A third process pump was previously located in this containment region – a system retrofit removed the pump and installed additional process piping.



Photo No. 20

View Direction of Photo:
Northeast

Date: 12/2/10

Description:
Close-up view of the second air stripping unit for IGWTP.



PHOTOGRAPHIC RECORD

OU1 Site Inspection

Photo No. 21
View Direction of Photo: Northeast
Date: 12/2/10
Description: Current passive vent carbon adsorption system (tank and process pressure relief vents discharge into this system).



Photo No. 22
View Direction of Photo: Southeast
Date: 12/2/10
Description: Vapor phase GAC vessel. The large blue piping in the foreground is the untreated vapor inlet with the silver discharge stack in the background to the right.





FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

Site Name: Motorola 52 nd Street Superfund Site	EPA ID: AZD009004177
Review Report: 2011 Sitewide Five-Year Review	Review Period: August 2006 - October 2010
Treatment Facility Name: Integrated GW Treatment Plant	Operable Unit Region: OU1

I. SITE INFORMATION

Location and Region: Phoenix, Arizona (EPA Region 9)	Date(s) of Inspection: December 2, 2010
Treatment Facility Address: 5005 E. McDowell Road	Weather/Temperature: Cool/Sunny
Agency, Office, or Company Leading the Five-Year Review: Arizona Department of Environmental Quality with URS	

Remedy Includes: (check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Landfill cover/containment | <input type="checkbox"/> Monitored natural attenuation |
| <input checked="" type="checkbox"/> Access controls | <input checked="" type="checkbox"/> Groundwater containment |
| <input type="checkbox"/> Institutional controls | <input type="checkbox"/> Vertical barrier walls |
| <input checked="" type="checkbox"/> Groundwater pump and treatment | |
| <input type="checkbox"/> Surface water collection and treatment | |
| <input type="checkbox"/> Other: _____ | |

Attachments: Inspection team roster attached Site map/diagrams attached Photograph record attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager:** Jason Weed Project Manager (GPI) 10/26/10
Name Title Date
 Interviewed: at site at office by phone Phone number: _____ Interview record completed:
 Problems, suggestions: _____

2. **O&M Staff:** Leo Wilson Treatment Plant Operator (GPI) 12/2/10
Name Title Date
 Interviewed: at site at office by phone Phone number: _____ Interview record completed:
 Problems, suggestions: _____

3. **Local Regulatory Authorities and Response Agencies:**

Agency: <u>US Environmental Protection Agency</u>	Interview record completed: <input checked="" type="checkbox"/>
Contact: <u>Janet Rosati</u> Project Manager <u>10/20/10</u>	<small>Date Phone No.</small>
<small>Name Title</small>	
Problems, suggestions: _____	
Agency: <u>Arizona Department of Water Resources</u>	Interview record completed: <input checked="" type="checkbox"/>
Contact: <u>Scott Miller</u> GW Permitting Mgr <u>10/21/10</u>	<small>Date Phone No.</small>
<small>Name Title</small>	
Problems, suggestions: _____	
Agency: <u>City of Phoenix</u>	Interview record completed: <input checked="" type="checkbox"/>
Contact: <u>Phil McNeely</u> Env. Programs Mgr <u>10/27/10</u>	<small>Date Phone No.</small>
<small>Name Title</small>	
Problems, suggestions: _____	
Agency: _____	Interview record completed: <input type="checkbox"/>
Contact: _____	<small>Date Phone No.</small>
<small>Name Title</small>	
Problems, suggestions: _____	

4. **Names of Other Individuals Interviewed:** Interview records completed:
Jen McCall - Strategic Programs Manager with Freescale Semiconductor, Inc. (OU1 Site Manager)
Pamela Amorin - EHS Manager with On Semiconductor (52nd Street Facility EHS Manager)
Tom Suriano - Principal Hydrogeologist with Clear Creek Associates (consultant to Freescale)

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III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1.	O&M Documents: <input checked="" type="checkbox"/> November 2010 O&M Manual <input type="checkbox"/> _____ O&M Manual <input type="checkbox"/> _____ O&M Manual <input checked="" type="checkbox"/> Groundwater Monitoring Plan (SAP) <input checked="" type="checkbox"/> Treated System Monitoring Plan (SAP) <input checked="" type="checkbox"/> Ambient Air Monitoring Plan <input checked="" type="checkbox"/> Storm Water Pollution Prevention Plan (SWPPP) <input checked="" type="checkbox"/> As-Built Drawings <input checked="" type="checkbox"/> Maintenance Logs <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input checked="" type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date <input checked="" type="checkbox"/> Up to Date <input checked="" type="checkbox"/> Up to Date <input checked="" type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date <input checked="" type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
Remarks: <u>The Treatment System/Ambient Air Monitoring/SWPP Plans are part of the O&M Manual. Due to the age of the system and scope of changes, a number of system retrofits are not reflected in As-Built.</u>				
2.	Site-Specific Health and Safety Plan: <input checked="" type="checkbox"/> Contingency plan/emergency response plan Remarks: _____	<input checked="" type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
3.	Permits and Service Agreements: <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge permit/agreement <input type="checkbox"/> Waste disposal permit/agreement <input checked="" type="checkbox"/> Poor Quality Groundwater Withdrawal Permit (PQGWP)	<input type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date <input checked="" type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input type="checkbox"/> N/A
Remarks: <u>Per GPI, the volatile organic compound (VOC) mass discharge rate of the air stripper off-gas (the potential rate to emit without controls) is below the requirement for a Maricopa County air permit - this should be regularly demonstrated in annual effectiveness reports given variability in treatment facility influent concentrations. Freescale is currently securing a permit for the future discharge of treated water to the City of Phoenix sewer system.</u>				
6.	Discharge Compliance Records: <input type="checkbox"/> Air <input type="checkbox"/> Water (effluent) <input type="checkbox"/> _____	<input type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input type="checkbox"/> N/A
Remarks: _____				
7.	Daily Access/Security Logs: Remarks: <u>ON Semiconductor controls access to the 52nd Street Facility (GPI, Freescale, and all other site personnel must check in with security upon arrival or be issued contractor badges that are scanned upon entry). The GPI Operator notes access to the Integrated Groundwater Treatment Plant (IGWTP) in the Operator's Daily Logbook (i.e., Daily Activity Log).</u>	<input checked="" type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
8.	Operations, Maintenance, and Inspection Logs: <input checked="" type="checkbox"/> Daily Activity Logs <input checked="" type="checkbox"/> Monthly Operations Logs <input checked="" type="checkbox"/> Pump/Blower Maintenance Logs <input checked="" type="checkbox"/> Instrumentation Calibration Logs <input checked="" type="checkbox"/> Peripheral Equipment Maintenance Logs <input type="checkbox"/> Vent Scrubber Valve Sequence Logs <input checked="" type="checkbox"/> Extraction Well Maintenance Logs <input checked="" type="checkbox"/> Groundwater Monitoring Well Maintenance Logs <input checked="" type="checkbox"/> Solvent Recovery and Disposal Logs <input type="checkbox"/> Carbon Regeneration Logs <input checked="" type="checkbox"/> Liquid Phase Carbon Changeout Logs <input checked="" type="checkbox"/> Vapor Phase Carbon Changeout Logs	<input checked="" type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input checked="" type="checkbox"/> Readily Available <input checked="" type="checkbox"/> Readily Available <input checked="" type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available <input checked="" type="checkbox"/> Readily Available <input checked="" type="checkbox"/> Readily Available <input checked="" type="checkbox"/> Readily Available <input type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date <input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

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<input checked="" type="checkbox"/> SWPPP Inspection Logs	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> SWPPP Discrepancy Logs	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> _____	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> _____	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A

Remarks: Monthly operations logs and solvent recovery/disposal logs (for MP3 dense non-aqueous phase liquid [DNAPL] recovery only - no other solvent recovery operations are currently conducted) are maintained by the GPI Operator in Excel files on the treatment facility computer (and are transmitted to the GPI Project Manager for records retention) - representative files were inspected. The GPI Project Manager maintains carbon changeout information at the GPI office (not reviewed).

9. Records:

<input checked="" type="checkbox"/> Employee O&M Training Records	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Employee OSHA Certification Records	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Site Incident Records	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> Effluent Monitoring Records	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> Air Emissions Records/Inventories	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Recovered Solvent Disposal Records	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Liquid Phase Carbon Changeout Records	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Vapor Phase Carbon Changeout Records	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> _____	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> _____	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A

Remarks: Employee O&M Training is noted in the Operator's Daily Logbook (when applicable). Some OSHA Certification records are displayed on the wall in the treatment facility control room – other records are available in a file cabinet at the treatment facility. Per the GPI Operator - OSHA training is up to date (difficult to verify that records are up to date). Incident reports for all GPI operations at the 52nd Street Facility are kept in the treatment facility file cabinet and indicate the last incident (which was not associated with the IGWTP) occurred in 2005 (difficult to verify that records are up to date). Copies of carbon disposal manifests are kept in the treatment facility filing cabinet (difficult to verify that records are up to date).

10. Monitoring Data:

<input checked="" type="checkbox"/> Groundwater Monitoring Data	<input checked="" type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Treated Groundwater Effluent Data	<input checked="" type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> pH Monitoring Data	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
<input checked="" type="checkbox"/> Air Emissions Data	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Ambient Air Monitoring Data	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Waste Analysis/Characterization Data	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Process Flow Data	<input checked="" type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> _____	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A

Remarks: The GPI operator reads process flow totalizers (including individual wellhead flow totalizers) on a monthly basis and maintains original totalized flow records in the treatment facility filing cabinet - these records are used to prepare the Monthly Operations Log transmitted electronically to the GPI Project Manager. Select process flow data are also logged electronically although these records are not used for reporting purposes. The GPI Project Manager receives treatment plant influent and effluent analytical data (water and air, as applicable) as well as waste analysis results directly from analytical laboratories and maintains results at the GPI office (not reviewed). Snoop data (ambient air monitoring near piping joints) were not reviewed although noted as performed in logs.

IV. O&M COSTS

1. O&M Organization:

<input type="checkbox"/> State in-house	<input type="checkbox"/> Contractor for State
<input type="checkbox"/> PRP in-house	<input checked="" type="checkbox"/> Contractor for PRP
<input type="checkbox"/> Federal Facility In-house	<input type="checkbox"/> Contractor for Federal Facility
<input type="checkbox"/> Other: _____	

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

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Review Report: 2011 Sitewide Five-Year Review	Review Period: August 2006 - October 2010
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2. O&M Cost Records:

Readily Available Up to date

Funding mechanism/agreement in place: _____

Original O&M cost estimate: \$700,000 (prepared in 1987) Breakdown attached Not available

Total Annual Cost by Year for Review Period			
2006	\$1,210,000 (\$801,000 excluding Other Exp.)	<input checked="" type="checkbox"/> Breakdown in Five-Year Report	<input type="checkbox"/> Not available
2007	\$1,210,000 (\$840,000 excluding Other Exp.)	<input checked="" type="checkbox"/> Breakdown in Five-Year Report	<input type="checkbox"/> Not available
2008	\$1,320,000 (\$886,000 excluding Other Exp.)	<input checked="" type="checkbox"/> Breakdown in Five-Year Report	<input type="checkbox"/> Not available
2009	\$1,290,000 (\$845,000 excluding Other Exp.)	<input checked="" type="checkbox"/> Breakdown in Five-Year Report	<input type="checkbox"/> Not available
2010	\$1,310,000 (\$864,000 excluding Other Exp.)	<input checked="" type="checkbox"/> Breakdown in Five-Year Report	<input type="checkbox"/> Not available

3. Unanticipated or Unusually High O&M Costs During Review Period:

Describe costs and reasons (by year): Utility costs account for approximately \$380,000 of annual costs and include payments made by Freescale to ON Semiconductor to supply facility air, chilled water, steam, and electricity to the IGWTP (based not on usage but on maximum supply potential) and for maintaining service to other site remediation systems not currently in use (e.g., the Southwest Parking Lot [SWPL] soil vapor extraction [SVE] system) - thus actual utility usage is not reflected in utility costs. Lower carbon disposal costs in 2009 and 2010 reflect lower loading rates due to the temporary suspension of groundwater extraction in the vicinity of the Bedrock Pilot Study in 2009 as part of the test protocol.

V. ACCESS AND INSTITUTIONAL CONTROLS

1. Access Restrictions:

A. Perimeter Fencing: Good Condition Poor Condition N/A

Remarks: The IGWTP is located within the 52nd Street On Semiconductor campus. Access to the campus is restricted by perimeter fencing. Campus perimeter fencing is a combination of block walls and chain link fencing approximately 6 to 8 ft high (see Photos 2, 3 and 4 in the attached OU1 Site Inspection Photographic Record). Within the campus, a low block wall and rolling gate enclose the IGWTP area from surrounding unrelated operations (see Photo 15) and a locked chain-link fence surrounds the SWPL area (see Photo 8). Perimeter fencing is also present around the OCC extraction well Motor Control Center (MCC) building located outside the campus area (see Photo 11).

B. Access Gates: Good Condition Poor Condition N/A

Remarks: On Semiconductor campus access gates include the main security portal for site personnel (see Photo 1) and various gates (off McDowell and Roosevelt) for vehicular access (see Photos 3 and 4). All gates are monitored by On Semiconductor security personnel. Routine site personnel are logged into the campus via electronic key card readers. Site visitors must be logged in by campus security. All vehicles and associated personnel must provide appropriate site access documentation and are logged by campus security.

C. Signs and Other Security Measures: Good Condition Poor Condition N/A

Remarks: Signs are posted notifying personnel of access restrictions at all access gates. Campus security personnel regularly patrol the campus. Extraction wellheads located outside the campus area are secured with locks (see Photo 13).

2. Institutional Controls (ICs):

A. Implementation and Enforcement:

Site conditions imply ICs not properly implemented Yes No N/A

Site conditions imply ICs not being fully enforced Yes No N/A

Type of monitoring (e.g., self-reporting, drive-by): Not applicable

Frequency: Not applicable

Responsible party/agency: Not applicable

Contact: Not applicable

Name	Title	Date	Phone No.
Reporting is up-to-date	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Reports are verified by the lead agency	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Specific requirements in deed or decision documents have been met	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Violations have been reported	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Other problems or suggestions:	<input type="checkbox"/> Report attached		

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Remarks: There are no ICs in decision documents. State regulations serve as non-site specific ICs by limiting the approval of new production wells in known areas of contamination (i.e., Arizona Administrative Code [AAC] §R12-15-719 and 1302; Arizona Revised Statutes [ARS] §45-605).	
B. <i>Adequacy:</i> <input type="checkbox"/> ICs are adequate <input type="checkbox"/> ICs are inadequate <input checked="" type="checkbox"/> N/A Remarks: _____	
3 General:	
A. <i>Vandalism/Trespassing:</i> <input checked="" type="checkbox"/> Location shown on site map <input type="checkbox"/> No vandalism evident Remarks: <u>GPI noted that trespassing by neighborhood kids on the campus basketball court (for campus employees) recently occurred - the campus perimeter fencing height in the vicinity of the court was raised in response to this event. During the site inspection, graffiti was observed on a wall in the vicinity of the OCC extraction wellheads although no vandalism of Site structures was evident.</u>	
B. <i>Land use changes on site:</i> <input checked="" type="checkbox"/> N/A Remarks: _____	
C. <i>Land use changes off site:</i> <input checked="" type="checkbox"/> N/A Remarks: _____	
VI. GENERAL SITE CONDITIONS	
1. Roads: <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A Roads Condition: <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Roads Adequate <input type="checkbox"/> N/A Remarks: _____	
2. Other Site Conditions: <u>Not applicable</u> Remarks: _____	
VII. GROUNDWATER REMEDIES	
1. Groundwater Extraction Wells, Pumps, and Pipelines: <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
A. <i>Pumps, Wellhead Plumbing, and Electrical:</i> <input type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: <u>Pumps are functioning although wellhead installations are showing signs of environmental exposure.</u>	
B. <i>Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances:</i> <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: <u>The extraction system pipeline is double-contained; however, issues with liquid level sensors in associated sumps prompted disabling of the control system at some time in the past. Thus, the extraction system pipeline double-containment system alarm is no longer functional (the location of the sumps and impacts of disabling the controls on system integrity should be evaluated). Piping appurtenances were noted as present and apparently functioning - these were not further assessed during the site visit.</u>	
C. <i>Spare Parts and Equipment:</i> <input type="checkbox"/> Readily Available <input type="checkbox"/> Good Condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks: <u>Not assessed during site visit.</u>	
2. Treatment System: <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
A. <i>Treatment Train</i> (check components that apply): <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input checked="" type="checkbox"/> Air stripping <input checked="" type="checkbox"/> Carbon adsorbers Filters: _____ Additive (e.g., chelation agent, flocculent): <u>Sodium hexametaphosphate added as a scale-inhibitor</u> Others: <u>Solvent separation</u> <input type="checkbox"/> Good condition <input checked="" type="checkbox"/> Needs maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input type="checkbox"/> Equipment properly identified Quantity of groundwater treatment annually: <u>123 to 145 million gallons per year (from 2006 through 2009)</u> Quantity of surface water treatment annually: <u>Unknown (negligible quantities of rainwater may be processed)</u>	

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IX. OVERALL OBSERVATIONS

1. Adequacy of Remedy:

The primary operating component of the OU1 interim remedy is a groundwater pump and treat system (the IGWTP) which is intended to contain the contaminated groundwater plume at the Old Crosscut Canal (OCC). Groundwater is also extracted from select wells located in the vicinity of known source areas at the former Motorola 52nd Street Facility (the Courtyard and SWPL) but the extraction rates are relatively negligible (see Figure 6-1 of the Five-Year Report). The IGWTP has operated for approximately 20 years (the equipment was installed in 1991) and, for the most part, has effectively extracted and treated a significant quantity of contaminated groundwater. Specific plume containment issues have been noted in the past; however, the OCC extraction network has generally been effective in reducing the migration of impacted alluvial groundwater downgradient of OU1 and has had a beneficial impact on contamination in select regions of bedrock throughout most of the term of its operation. Thus, the system is adequate from an 'interim remedy' perspective but there are outstanding potential issues that will need to be considered in the near future and during final remedy scoping/development (see Early Indicators of Potential Remedy Failure and Opportunities for Optimization below).

2. Adequacy of O&M:

GPI operates and maintains the IGWTP and associated groundwater extraction wells in a manner sufficient to keep the system between 91.7% and 97.7% operational and achieve a level of treatment that meets or exceeds drinking water Maximum Contaminant Levels in treatment system effluent (per 2006-2009 annual effectiveness reports prepared by Clear Creek and Associates). This high level of sustained operation is indicative of a strong commitment to adequately operate and maintain this equipment by both Freescale and GPI. However, given the age of equipment, exposure to the elements, required operation at flowrates much lower than design flowrates, and required system retrofits (e.g., replacement of the off-gas treatment strategy) the system currently shows signs of wear and tear (e.g., weathering of exposed equipment) and is not operationally efficient (e.g., unnecessary operational complexity and high cost per gallon of water treated). Further, O&M of the IGWTP relies significantly on the experience and competence of the GPI operator - documentation regarding day to day procedures/operations is not specific which could lead to future operational issues as the system continues to age. Given the general lack of detailed IGWTP operational information in reports submitted to ADEQ, there is limited documentation available to further assess the adequacy of O&M.

3. Early Indicators of Potential Remedy Failure:

Significant issues that suggest a potential for future interim remedy problems include: (1) decreasing groundwater elevations that have led to decreased extraction well flow rates (which may impact capture - particularly in the bedrock - and have resulted in inefficient IGWTP operation); (2) DNAPL present in fractured bedrock at and near the former 52nd Street Facility that serves as an ongoing source of groundwater contamination; and (3) an aging and inefficient treatment system.

4. Opportunities for Optimization of O&M and Monitoring Activities:

Efforts to extract highly impacted groundwater from the Courtyard area should be increased - as documented in the Groundwater Remedial Alternatives Analysis (RAA) report prepared by GeoTrans in 2005 - considerable increases in mass removal are possible. The ongoing Bedrock Extraction Pilot Study will likely assist in implementing this objective. IGWTP operations should be evaluated in the near term to improve efficiency and better document operations so that treatment system effectiveness does not deteriorate before a final remedy can be implemented - a detailed engineering review may be useful and should include both a process efficiency/remaining service life evaluation and an assessment of current process monitoring/controls and documentation requirements. The scale in the liquid-phase GAC treatment system units should be addressed and/or justification that these units are not required should be provided (if this approach is considered, a workplan should be prepared to demonstrate required treatment levels). The RAA documented the current inefficiency of the existing treatment system and included a number of retained alternatives for replacing the primary IGWTP process components including installation of a new tray-type air stripper (without liquid-phase GAC polishing) or implementation of a liquid-phase GAC treatment system (without air stripping). Given the evaluated concentrations and flow rates, the RAA recommended installation of a new tray-type air stripper. Any planned replacement of IGWTP process components should also include a strategy to upgrade process control and monitoring and address both the limitations of the current utility agreement with On Semiconductor (that is not based on usage but is based on total usage potential) and the impending change in treated water enduse. Documentation improvements should, at a minimum, include more detailed reporting of IGWTP process operations in regular reporting to ADEQ (e.g., annual effectiveness reports).

52nd Street IGWTP Site Plan/Equipment Layout

